

SAMSUNG

TFT-LCD TV

Chassis	Model
GPL15KE	LW15M23CP LW15M25CP
GPL17KE	LW17M24CP
GPL20KE	LW20M21CP LW20M22CP LW20M25CP

SERVICE Manual

TFT-LCD TV



Fashion Feature

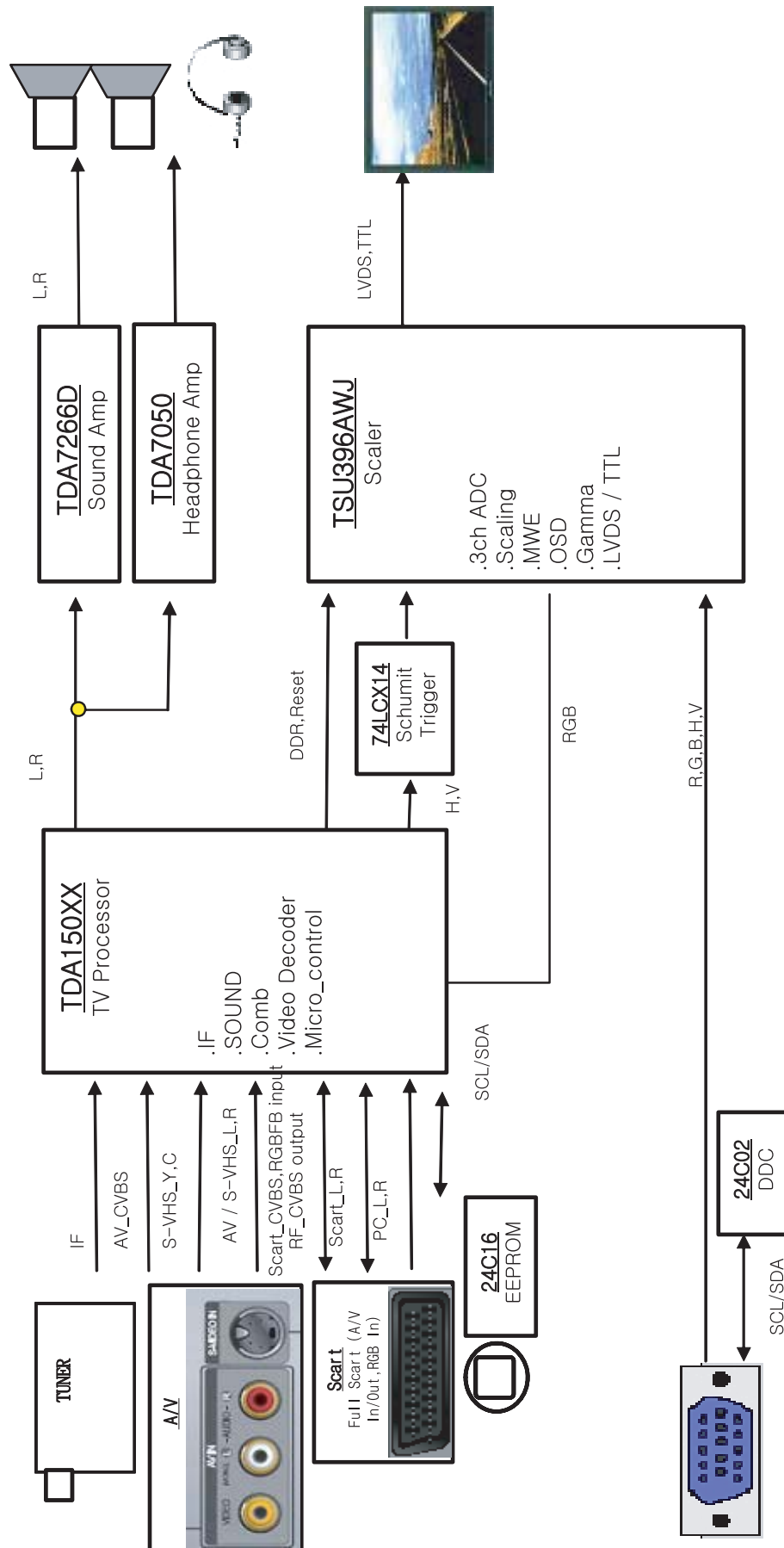
- Easy-to-use remote control
- Easy-to-use on-screen menu system
- Automatic timer to turn the TV on and off
- Automatic channel tuning for up to 194 channels. (Air : 69 , STD : 125)
- A special filter to reduce or eliminate reception problems
- Fine tuning control for the sharpest picture possible
- Built-in, dual channel speakers
- Headphone jack for private listening



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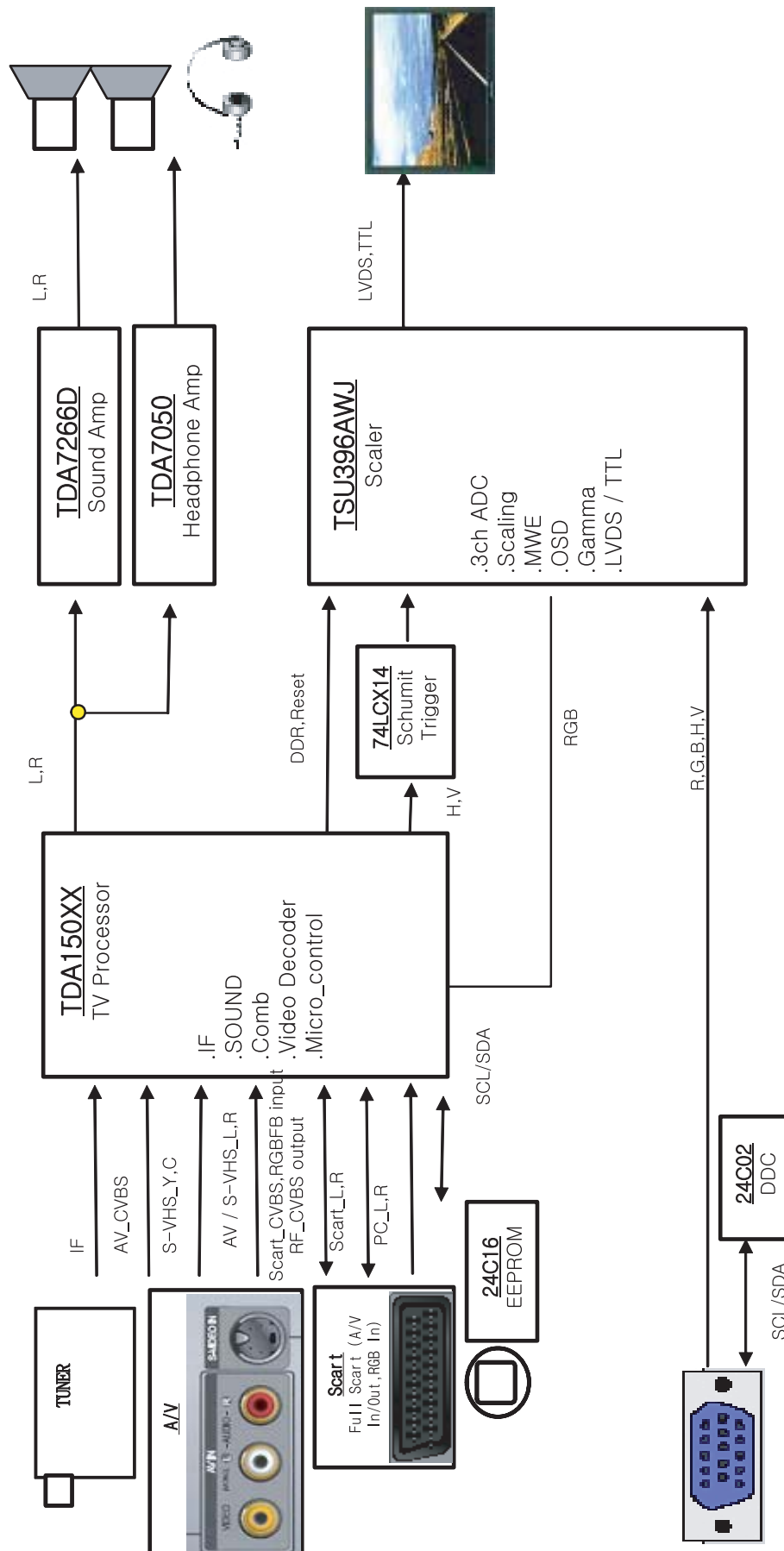
7 Block Diagram



Memo

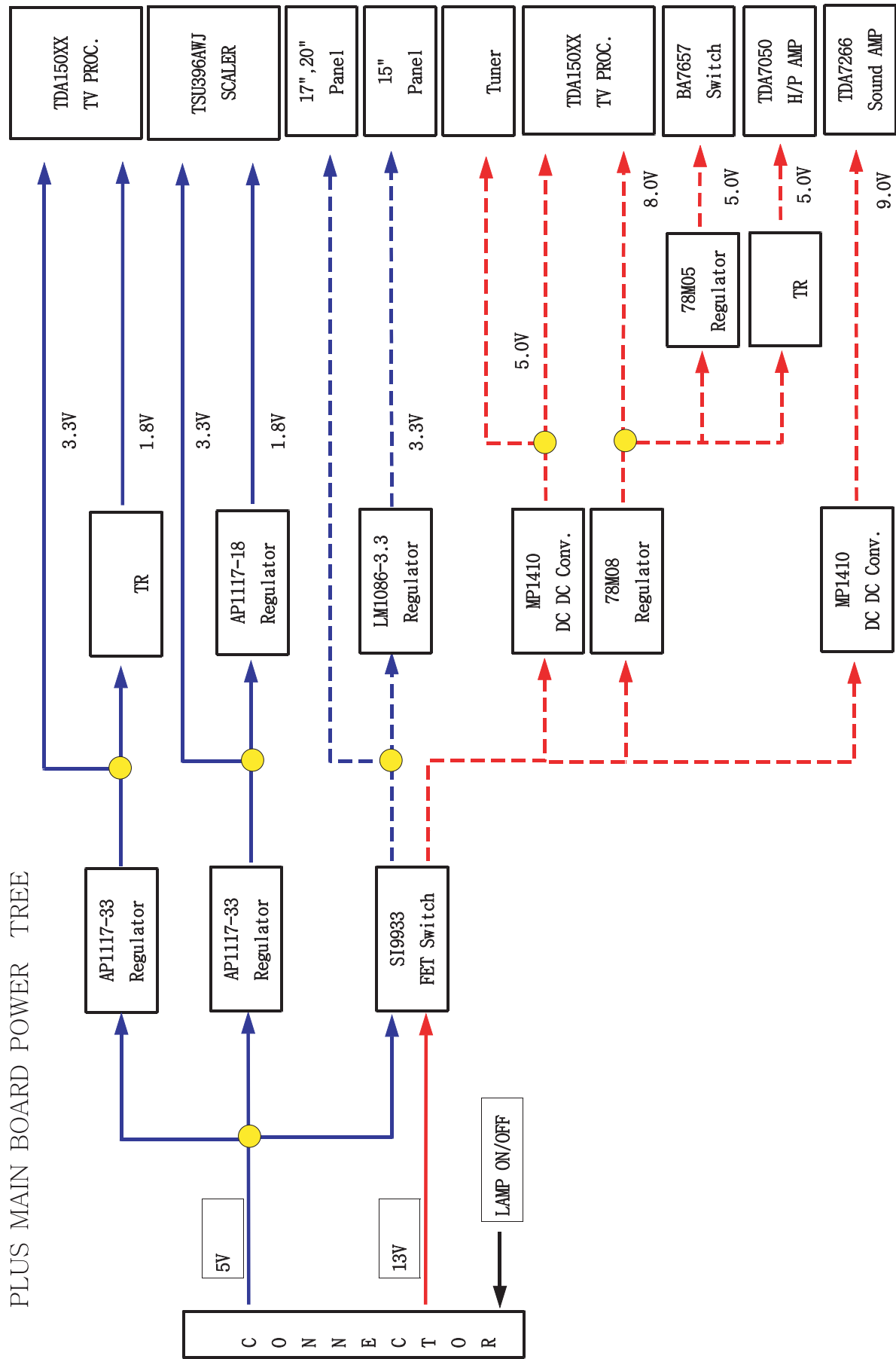
13 Circuit Descriptions

13-1 Overall Block Structure

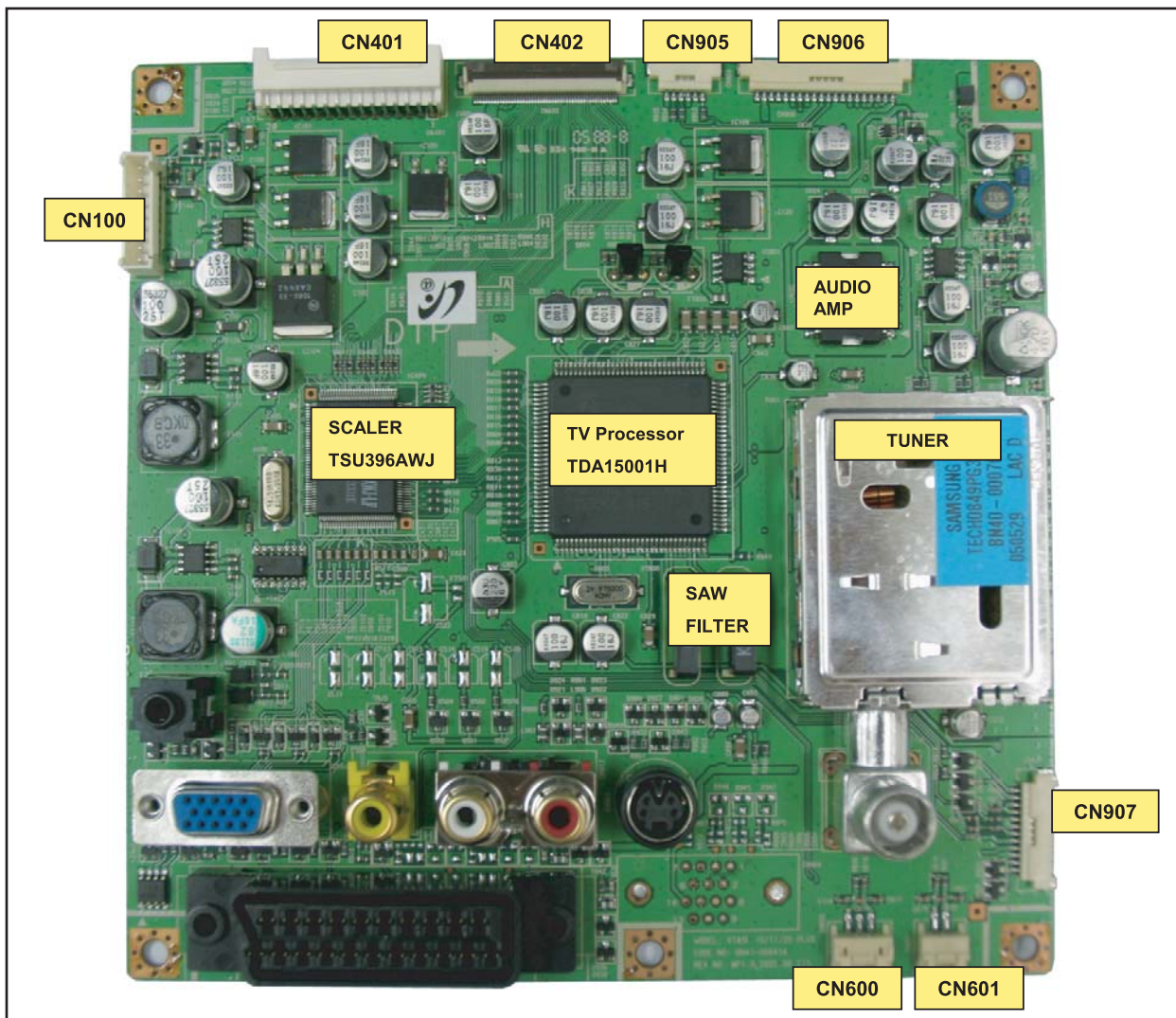


13-2 Partial Block Description

13-2-1 MAIN BOARD POWER TREE



13-2-2 WIRING DIAGRAM



- CN100(9P) : To IP Board
 CN401(30P) : To 15",17" Panel
 CN402(50P) : To 20" Panel
 CN905(5P) : To Program Download Jig
 CN906(20P) : To Scart
 CN600(3P) : To Left Speaker
 CN601(2P) : To Right Speaker
 CN907(12P) : To Function Board

13 Circuit Descriptions

CN401

15",17" Panel LVDS Interface

Pin No.	AD B'D	PANEL	Pin No.	AD B'D	PANEL
1	N.C	5V	16	E0-	E1-
2	GND	5V	17	O3+	GND
3	E3+	5V	18	O3-	E0+
4	E3-	NC	19	OCK+	E0-
5	GND	NC	20	OCK-	O3+
6	ECK+	NC	21	GND	O3-
7	ECK-	GND	22	O2+	OC+
8	GND	E3+	23	O2-	OC-
9	E2+	E3-	24	O1+	GND
10	E2-	EC+	25	O1-	O2+
11	GND	EC-	26	O0+	O2-
12	E1+	E2+	27	O0-	O1+
13	E1-	E2-	28	+5V	O1-
14	GND	GND	29	+5V	O0+
15	E0+	E1+	30	+5V	O0-

CN402

20 Inch Panel TTL Interface

Pin No.	Main B'D	PANEL	Pin No.	Main B'D	PANEL
1	NC	NC	26	R1	R0
2	NC	NC	27	R2	GND
3	GND	NC	28	R3	G7
4	GND	GND	29	GND	G6
5	B0	GND	30	R4	G5
6	B1	5.0V	31	R5	G4
7	B2	5.0V	32	R6	GND
8	B3	5.0V	33	R7	G3
9	GND	5.0V	34	GND	G2
10	B4	GND	35	DCLK	G1
11	B5	HSYNC/NC	36	GND	G0
12	B6	VSYNC/NC	37	DE	GND
13	B7	GND	38	GND	B7
14	GND	DE	39	VSYNC/NC	B6
15	G0	GND	40	HSYNC/NC	B5
16	G1	DCLK	41	GND	B4
17	G2	GND	42	5.0V	GND
18	G3	R7	43	5.0V	B3
19	GND	R6	44	5.0V	B2
20	G4	R5	45	5.0V	B1
21	G5	R4	46	GND	B0
22	G6	GND	47	GND	GND
23	G7	R3	48	NC	GND
24	GND	R2	49	NC	NC
25	R0	R1	50	NC	NC

CN100

Inverter Power Interface

Pin No.	Main B'D	IP B'D
1	+13V	BL_EN
2	+13V	BL_BRT
3	GND	+5V
4	GND	+5V
5	GND	GND
6	+5V	GND
7	+5V	GND
8	BL_BRT	+13V
9	BL_EN	+13V

CN907

Function Board Interface

Pin No.	Main B'D	Function
1	KEY2	LED_GRN
2	KEY1	LED_RED
3	GND	NC
4	HP_R	3.3V
5	HP_L	IR
6	HP_IDENT	GND
7	GND	HP_IDENT
8	IR	HP_L
9	3.3V	HP_R
10	NC	GND
11	LED_RED	KEY1
12	LED_GRN	KEY2

3 Alignments and Adjustments

3-1 Service Instruction

1. Usually, a color TV-VCR needs only slight touch-up adjustment upon installation.
Check the basic characteristics such as height, horizontal and vertical sync.
2. Use the specified test equipment or its equivalent.
3. Correct impedance matching is essential.
4. Avoid overload. Excessive signal from a sweep generator might overload the front-end of the TV. When inserting signal markers, do not allow the marker generator to distort test result.
5. Connect the TV only to an AC power source with voltage and frequency as specified on the backcover nameplate.
6. Do not attempt to connect or disconnect any wire while the TV is turned on. Make sure that the power cord is disconnected before replacing any parts.
7. To protect against shock hazard, use an isolation transform.

3-2 How to Access Service Mode

3-2-1 Entering Factory Mode

- To enter "Service Mode" Press the remote -control keys in this sequence :

- If you do not have Factory remote - control



- If you have Factory remote - control



3-3 Factory Data

Service		
PC Auto Color	↺"	
Video Auto Color	↺"	
Reset	↺"	
DLC/MWE Part	↺"	
SFR PART	↺"	
Sub Adjust	↺"	
UOC Adjust	↺"	
Option	↺"	
Checksum	↺"	
Panel Information	↺"	
Bus Stop : OFF	↺"	
2005/06/23		
T-pls25nus-0906		

-. OSD which the basic adjustment is added.

PC Auto Color

Video Auto Color

Reset

DLC/MWE Part

SFR PART

Sub Adjust

UOC Adjust

Option

Checksum

Panel Information

Bus Stop : OFF

*. 2005/06/23: MCU firmware date.

*. T-PLUS25NUS-0906: MCU firmware version information
(this information must be appended due to a compatibility problem report.)

1) Reset: Factory reset

2) Bus Stop: The communication Line ON / OFF

Move to the (-) / (+) key, select the 'Enter' key.

3) Auto adjustment

4) PC Auto Color/ Video Auto Color :in case that color of all screen is wrong, excute the PC Auto color at 16 gray pattern(refer to attach left 16gray pattern)

5) Checksum: MCU firmware checksum information
(this information must be appended due to a compatibility problem report.)

Service		
PC Auto Color	↺"	
Video Auto Color	↺"	
Reset	↺"	
DLC/MWE Part	↺"	
SFR PART	↺"	
Sub Adjust	↺"	
UOC Adjust	↺"	
Option	↺"	
Checksum	↺"	
Panel Information	↺"	
Bus Stop : OFF	↺"	
2005/04/20		
TM-BRHMS20WW-0714		



DLC/MWE Part		
NVRAM Reset		¢"
DLC-	0-10	0
MWE-	0-1	1
Demo	0-1	0
Brightness+	0-255	100
Contrast+	0-255	113
Sharpness+	-10-10	1
Hue+	0-100	50
Saturation+	0-255	125
R Offset		46
G Offset		50
B Offset		56
R Gain		58
G Gain		50
B Gain		51

6) Dynamic Luma Adjustment

" - " : RF, AV, S_Video -> all store

" + " : RF, AV, S_Video -> apart store

SFR Part		
DCXO Sel.		0
DCXO Tune		64
OVMAAPT	0-1	1
OVMTNR	0-3	2
IF Demod	0-63	38
F FI	0-1	0
R0:77	R1:71	R2:81
R3:18	R4:0	R5:1F

7) Special Function Register

Sub Adjust		
R Blk Lvl+	0-63	28
G Blk Lvl+	0-63	20
Peak Frq/DLY+	0-3	0
Peak+	0-63	40
Soft Clp Lvl-	0-3	0
W Limit-	0-15	8
R White Pnt+	0-63	37
G White Pnt+	0-63	31
B White Pnt+	0-63	31
AGC T-O-	0-63	23

3 Alignments and Adjustments

UOC Adjust									
BKS-	0-1								1
WSx-	0-3								2
	0	0	0	0	0	20	20		2
0	20	20	20	20	20	20	20		2
0	20	20	20	19	26				

Adjust									
R Offset									20
G Offset									20
B Offset									20
R Gain									20
G Gain									20
B Gain									20
Sclr Coring+	0-255								35
	0	0	0	FF	DD	BD			

Service									
Suwon + America									
Samex + America									
.....									
.....									
.....									
Help Menu									: On
Auto-Auto									: Off

Service									
Monitor	:								3 Hr
Panel Cycle	:								249
									Time Ch. No
Panel	:								3 Hr 0
Upper Lamp	:								3 Hr 0
Lower Lamp	:								3 Hr 0

8) UOC Adjustment

BKS : Black stretch
Wsx : White stretch

9) Option: Spread Step / Spread Span (for EMI test)

10) Panel Information

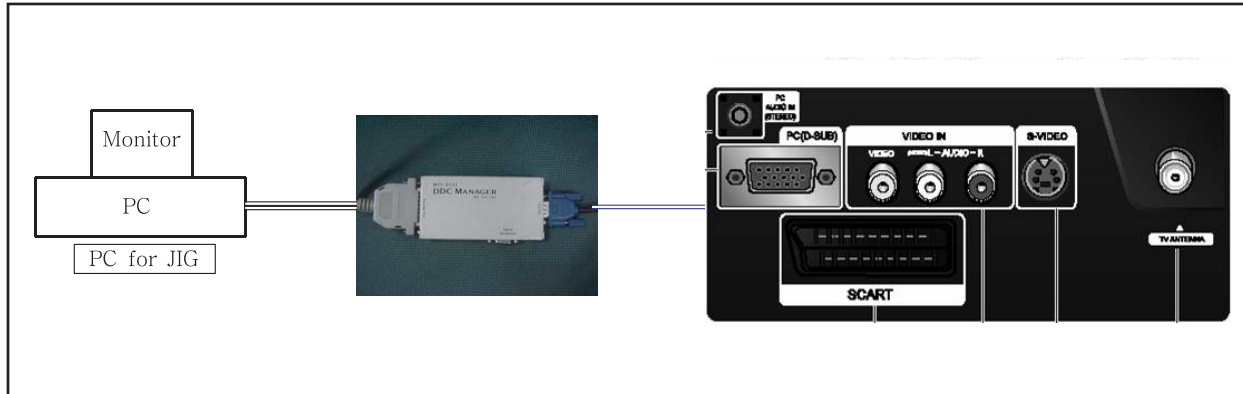
various function are included in information.

- Monitor On Time : Power On Time
- Panel Cycle : Panel On/off time (Power off, Mode change, DPMS on/off ...)
- Panel : Panel on Time
(when the panel is changed , select the Reset)
- Lower lamp : Lower lamp on time
(when the Lower lamp is changed , select the Reset)
- Upper lamp : Upper Lamp on time
(when the Upper Lamp is changed , select the Reset)

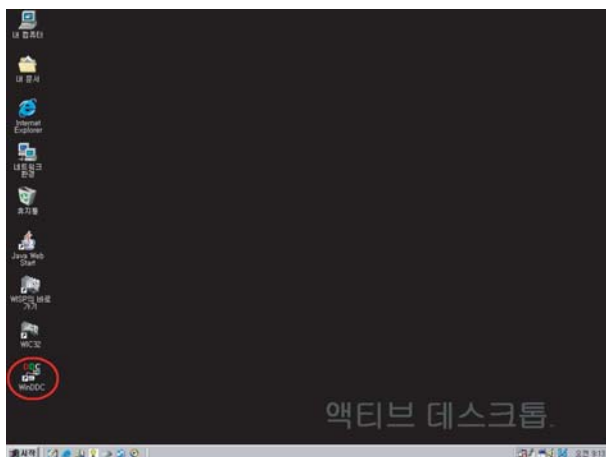
3-4 Service Adjustment

3-4-1 EDID input method

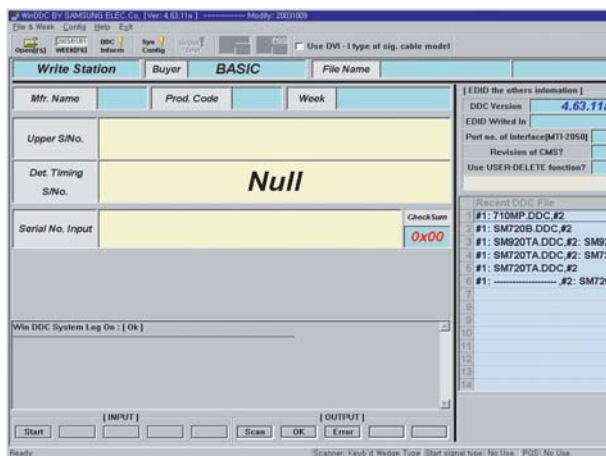
- SAMSUNG LCD TV support the DDC control JIG.
- You can see the connection between PC and LCD TV.



3-4-2 EDID input method (Windows Program)

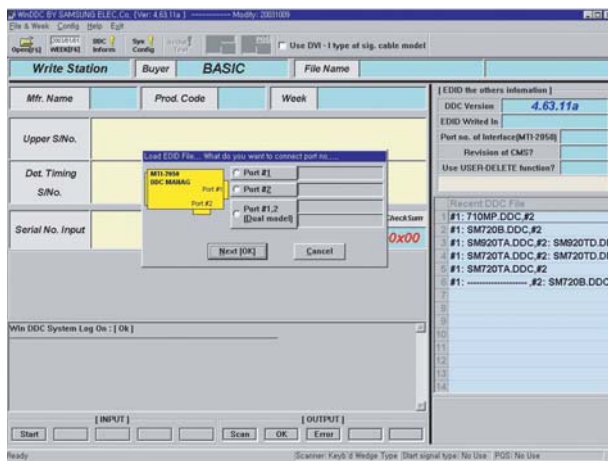


1. Execute "WinDDC.EXE"

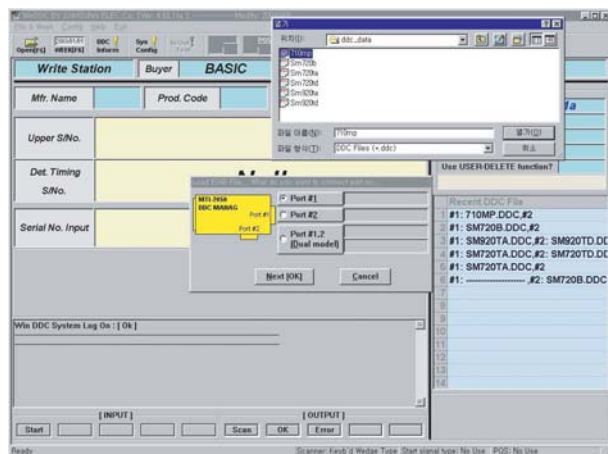


2. Click "Open[F5]"

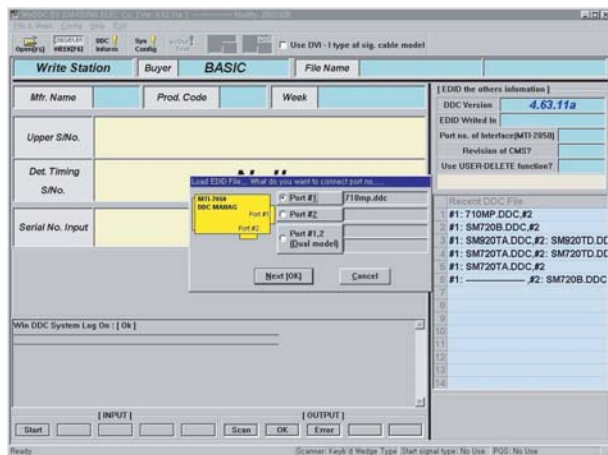
3 Alignments and Adjustments



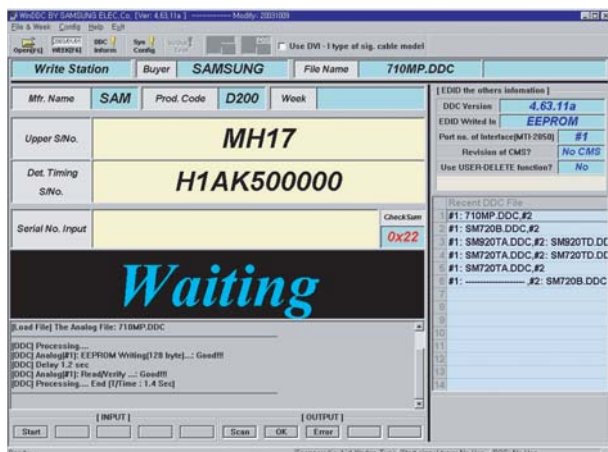
3. Select Connected Port#1 and Click Next OK.



4. Select Connected Port#1 and Click Next OK.
Find file name :
15 inch : VE15
17 inch : VC17
20 inch : VC20

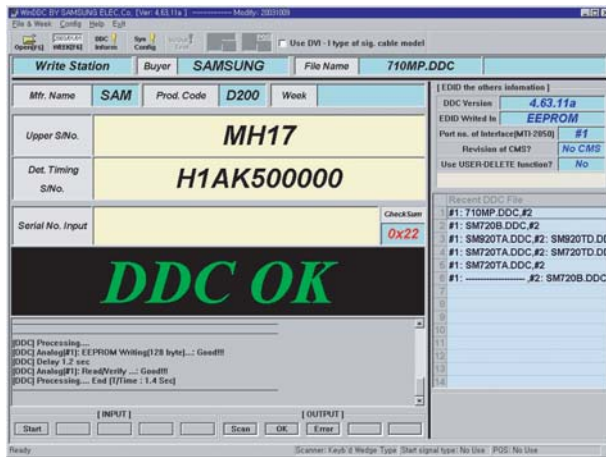


5. Click Next (OK) button.



6. Select enter button (on Key-Board) After Monitor S/N input.

8. Check "DDC OK".



3-4-3 Micom (TDA15001H) Program Upgrade



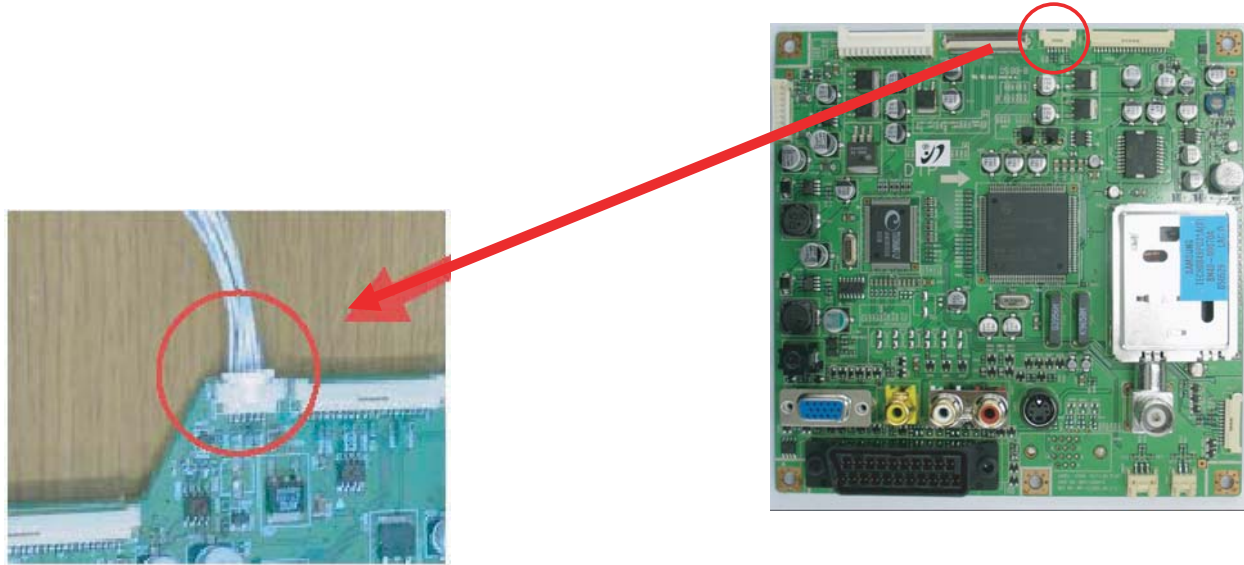
1. Program Upgrade Jig



2. Connect the parallel Port

3 Alignments and Adjustments

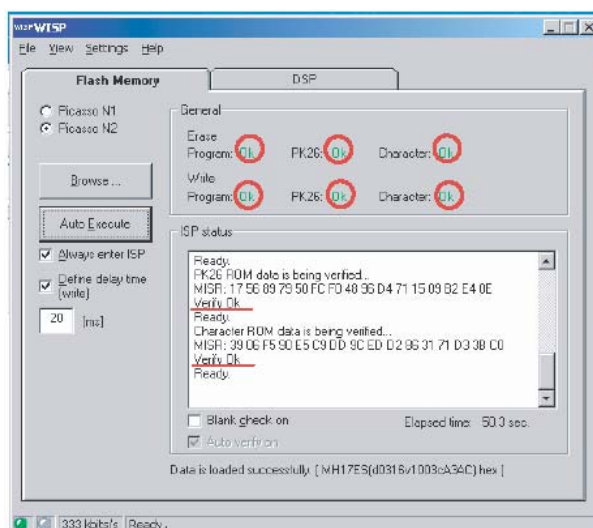
3. Connect Jig to CN905 on PCB Ass'y



4. Click " WISP " Icon on Computer



5. Check "Automatic mode on".



6. Click "Browser" button : Select the Code , Click "Auto Execute" button Check Erase and Write OK In "General" window and check Verify OK in "ISP status" window.

1 Precautions

Follow these safety, servicing and ESD precautions to prevent damage and to protect against potential hazards such as electrical shock.

1-1 Safety Precautions

1-1-1 Warnings

1. For continued safety, do not attempt to modify the circuit board.
2. Disconnect the AC power and DC Power Jack before servicing.

1-1-2 Servicing the LCD Monitor

1. When servicing the LCD Monitor Disconnect the AC line cord from the AC outlet.
2. It is essential that service technicians have an accurate voltage meter available at all times. Check the calibration of this meter periodically.

1-1-3 Fire and Shock Hazard

Before returning the monitor to the user, perform the following safety checks:

1. Inspect each lead dress to make certain that the leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the monitor.
2. Inspect all protective devices such as nonmetallic control knobs, insulating materials, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacitor networks, mechanical insulators, etc.
3. Leakage Current Hot Check (Figure 1-1):
WARNING: Do not use an isolation transformer during this test.

Use a leakage current tester or a metering system that complies with American National Standards Institute (ANSI C101.1, *Leakage Current for Appliances*), and Underwriters Laboratories (UL Publication UL1410, 59.7).

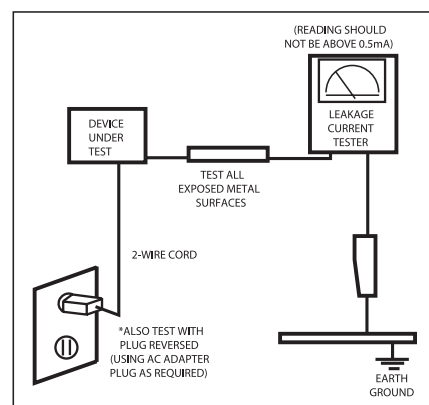


Figure 1-1. Leakage Current Test Circuit

4. With the unit completely reassembled, plug the AC line cord directly into a 120V AC outlet. With the unit's AC switch first in the ON position and then OFF, measure the current between a known earth ground (metal water pipe, conduit, etc.) and all exposed metal parts, including: metal cabinets, screwheads and control shafts. The current measured should not exceed 0.5 milliamp. Reverse the power-plug prongs in the AC outlet and repeat the test.

1-1-4 Product Safety Notices

Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection. The protection they give may not be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by $\triangle$ on schematics and parts lists. A substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire and/or other hazards. Product safety is under review continuously and new instructions are issued whenever appropriate.

1-2 Servicing Precautions

WARNING: An electrolytic capacitor installed with the wrong polarity might explode.

Caution: Before servicing units covered by this service manual, read and follow the Safety Precautions section of this manual.

Note: If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions, always follow the safety precautions.

1-2-1 General Servicing Precautions

1. Always unplug the unit's AC power cord from the AC power source and disconnect the DC Power Jack before attempting to:
(a) remove or reinstall any component or assembly, (b) disconnect PCB plugs or connectors, (c) connect a test component in parallel with an electrolytic capacitor.
2. Some components are raised above the printed circuit board for safety. An insulation tube or tape is sometimes used. The internal wiring is sometimes clamped to prevent contact with thermally hot components. Reinstall all such elements to their original position.
3. After servicing, always check that the screws, components and wiring have been correctly reinstalled. Make sure that the area around the serviced part has not been damaged.
4. Check the insulation between the blades of the AC plug and accessible conductive parts (examples: metal panels, input terminals and earphone jacks).
5. Insulation Checking Procedure: Disconnect the power cord from the AC source and turn the power switch ON. Connect an insulation resistance meter (500 V) to the blades of the AC plug.

The insulation resistance between each blade of the AC plug and accessible conductive parts (see above) should be greater than 1 megohm.
6. Always connect a test instrument's ground lead to the instrument chassis ground before connecting the positive lead; always remove the instrument's ground lead last.

1-3 Static Electricity Precautions

Some semiconductor (solid state) devices can be easily damaged by static electricity. Such components are commonly called Electrostatically Sensitive Devices (ESD). Examples of typical ESD are integrated circuits and some field-effect transistors. The following techniques will reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor components or assemblies, drain the electrostatic charge from your body by touching a known earth ground. Alternatively, wear a discharging wrist-strap device. To avoid a shock hazard, be sure to remove the wrist strap before applying power to the monitor.
2. After removing an ESD-equipped assembly, place it on a conductive surface such as aluminum foil to prevent accumulation of an electrostatic charge.
3. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ESDs.
4. Use only a grounded-tip soldering iron to solder or desolder ESDs.
5. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ESDs.
6. Do not remove a replacement ESD from its protective package until you are ready to install it. Most replacement ESDs are packaged with leads that are electrically shorted together by conductive foam, aluminum foil or other conductive materials.
7. Immediately before removing the protective material from the leads of a replacement ESD, touch the protective material to the chassis or circuit assembly into which the device will be installed.

Caution: Be sure no power is applied to the chassis or circuit and observe all other safety precautions.
8. Minimize body motions when handling unpackaged replacement ESDs. Motions such as brushing clothes together, or lifting your foot from a carpeted floor can generate enough static electricity to damage an ESD.

1-4 Installation Precautions

1. For safety reasons, more than two people are required for carrying the product.
2. Keep the power cord away from any heat emitting devices, as a melted covering may cause fire or electric shock.
3. Do not place the product in areas with poor ventilation such as a bookshelf or closet. The increased internal temperature may cause fire.
4. Bend the external antenna cable when connecting it to the product. This is a measure to protect it from being exposed to moisture. Otherwise, it may cause a fire or electric shock.
5. Make sure to turn the power off and unplug the power cord from the outlet before repositioning the product. Also check the antenna cable or the external connectors if they are fully unplugged.
Damage to the cord may cause fire or electric shock.
6. Keep the antenna far away from any high-voltage cables and install it firmly. Contact with the high-voltage cable or the antenna falling over may cause fire or electric shock.
7. When installing the product, leave enough space(10cm) between the product and the wall for ventilation purposes.
A rise in temperature within the product may cause fire.

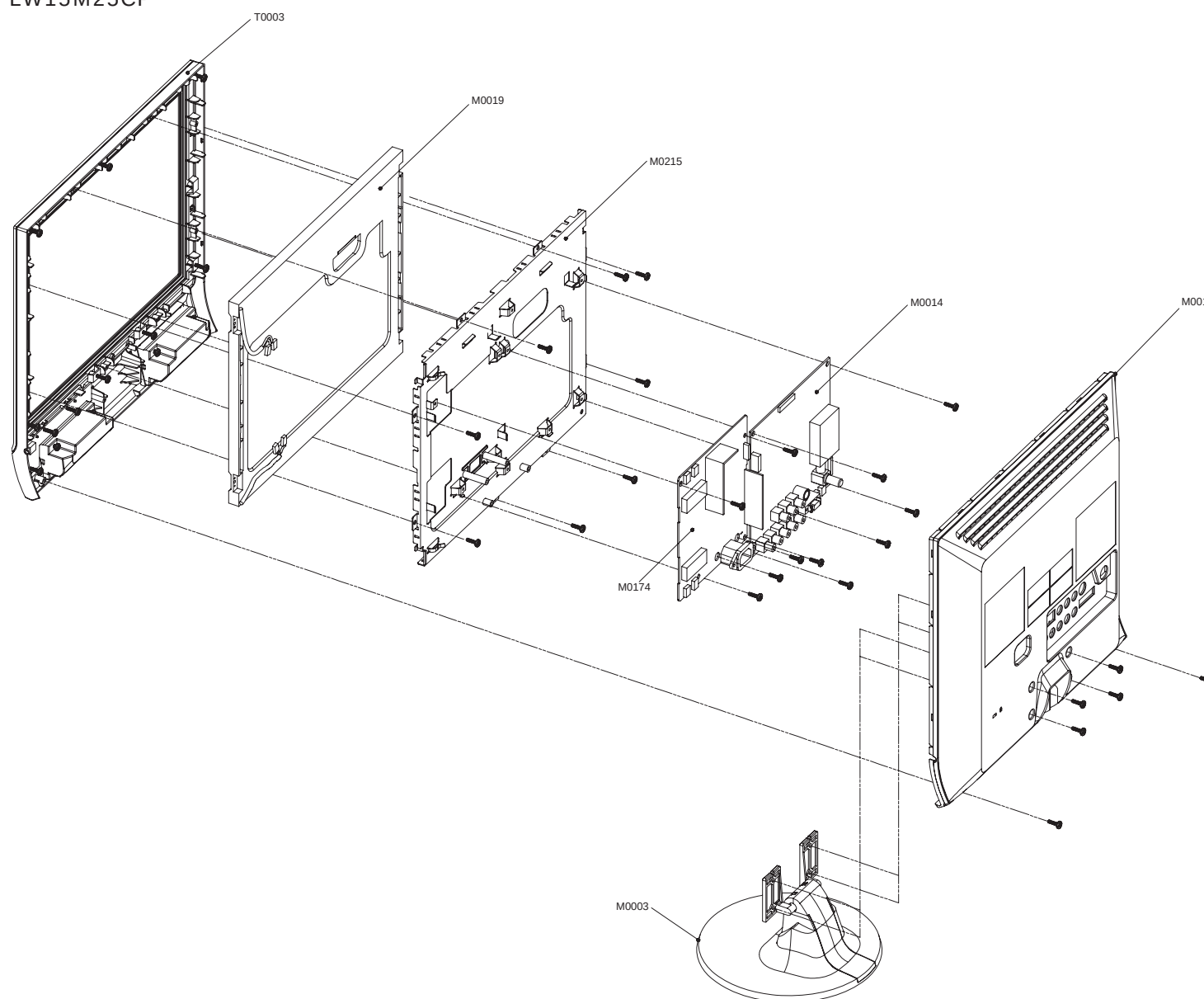
Memo

5 Exploded View and Parts List

- You can search for updated part codes through ITSELF web site.

URL : <http://itself.sec.samsung.co.kr/>

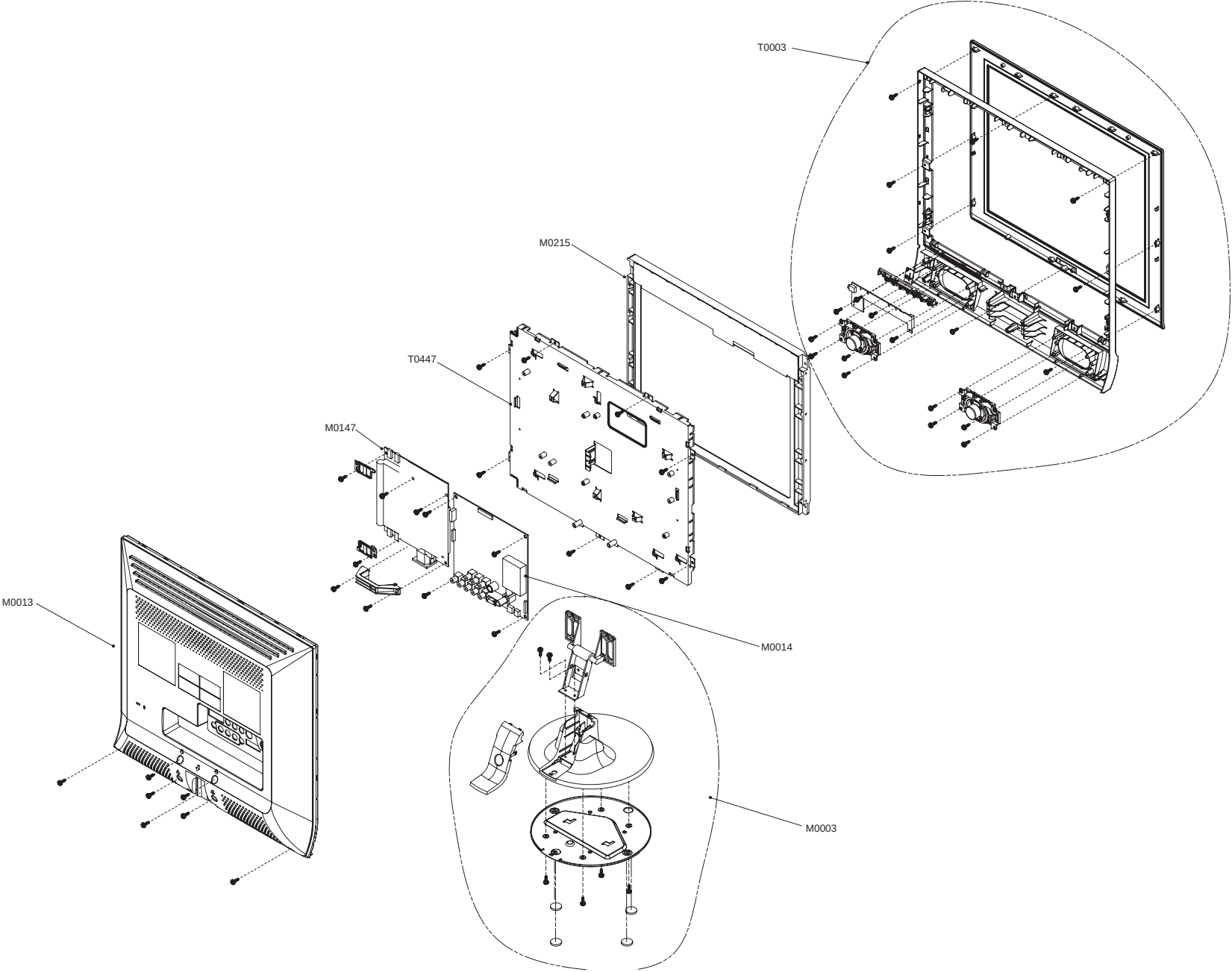
5-1 LW15M23CP, LW15M25CP



5 Exploded View & Parts List

Location	Code.No	Item & Specification	Q'ty	SA/SNA	Remark
T0003	BN96-01103J	ASSY COVER P-FRONT;PLUS,15EO,ABS,V0,BK19	1	S.N.A	
M0019	BN07-00111A	LCD;LTM150XH-L06,CZB,6BIT FRC,331.6*254.	1	S.A	
M0215	BN96-01188A	ASSY MISC P-SHIELD PANEL;VE15UO,SECC T0.	1	S.N.A	
M0014	BN94-00747D	ASSY PCB MAIN;LW15M24CPX/XEC,PL15KU	1	S.N.A	
M0174	BN44-00112A	IP BOARD;IP-31.6W(13V,5V),VENICE,1.5MA~3	1	S.A	
M0013	BN96-01104M	ASSY COVER P-REAR;PLUS,15EO,ABS,V0,BK19(	1	S.N.A	
M0003	BN96-01105A	ASSY STAND P;VE15UO,ABS HB	1	S.A	

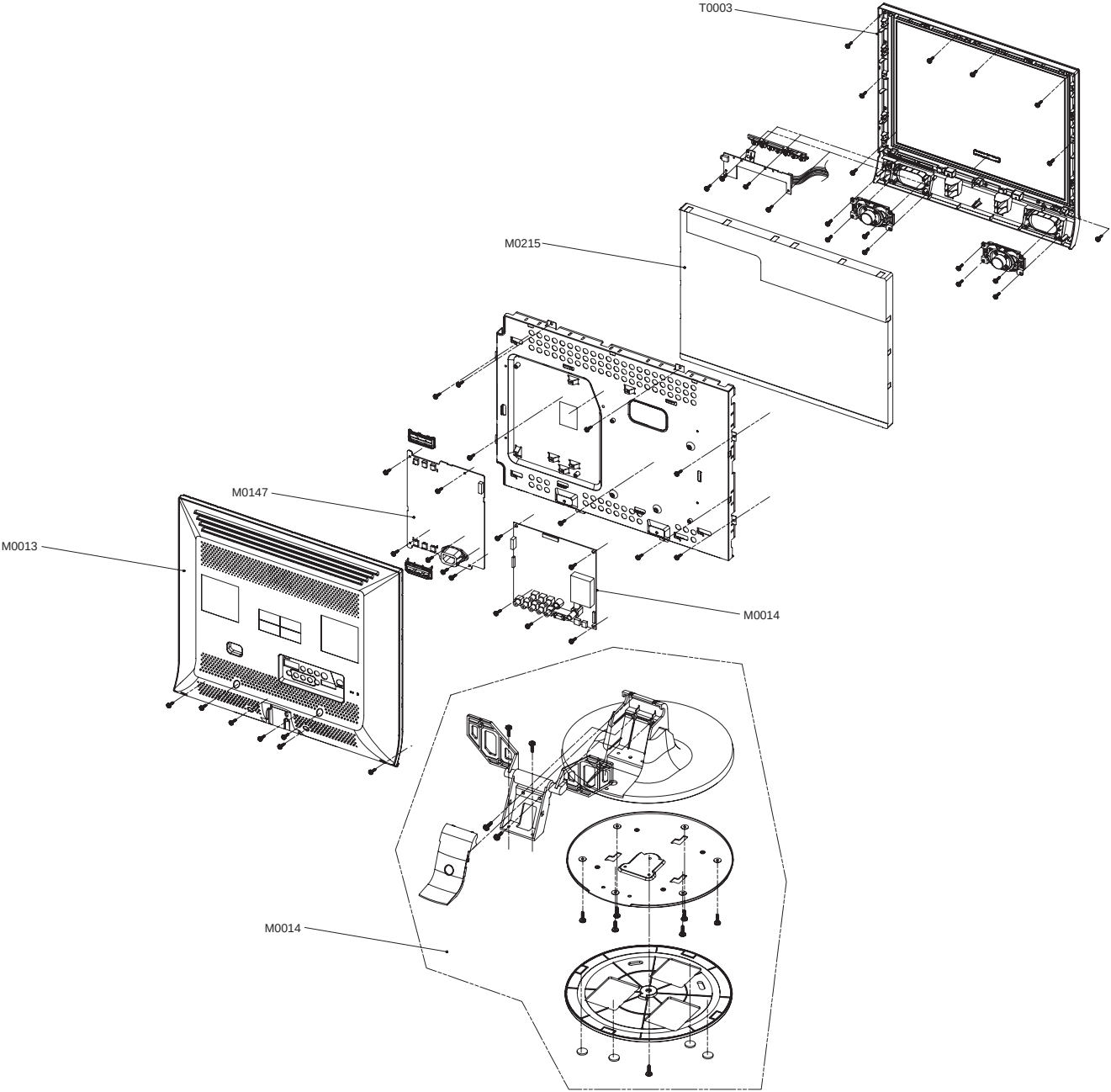
5-2 LW17M24CP



5 Exploded View & Parts List

Location	Code.No	Item & Specification	Q'ty	SA/SNA	Remark
T0003	BN96-02097H	ASSY COVER P-FRONT;PLUS,17EO,ABS,V0,BK19	1	S.N.A	
M0215	BN07-00214A	LCD-PANEL;LTM170EU-L15,VENICE,6BIT FRC,3	1	S.A	
T0447	BN96-02100A	ASSY BRACKET P-PANEL;VT17,SECC,T1.0	1	S.N.A	
M0174	BN44-00125A	IP BOARD;FSP049_2PI01,MH17ES,3.6~4.4mA,6	1	S.A	
M0014	BN94-00747E	ASSY PCB MAIN;LW17M24CPX/XEC,PL17KU	1	S.N.A	
M0013	BN96-01256L	ASSY COVER P-REAR;PLUS,17EO,ABS,V0,BK19(	1	S.N.A	
MM0003	BN96-01335A	ASSY STAND P;VC17**,ABS HB	1	S.A	

5-3 LW20M21CP, LW20M22CP, LW20M25CP

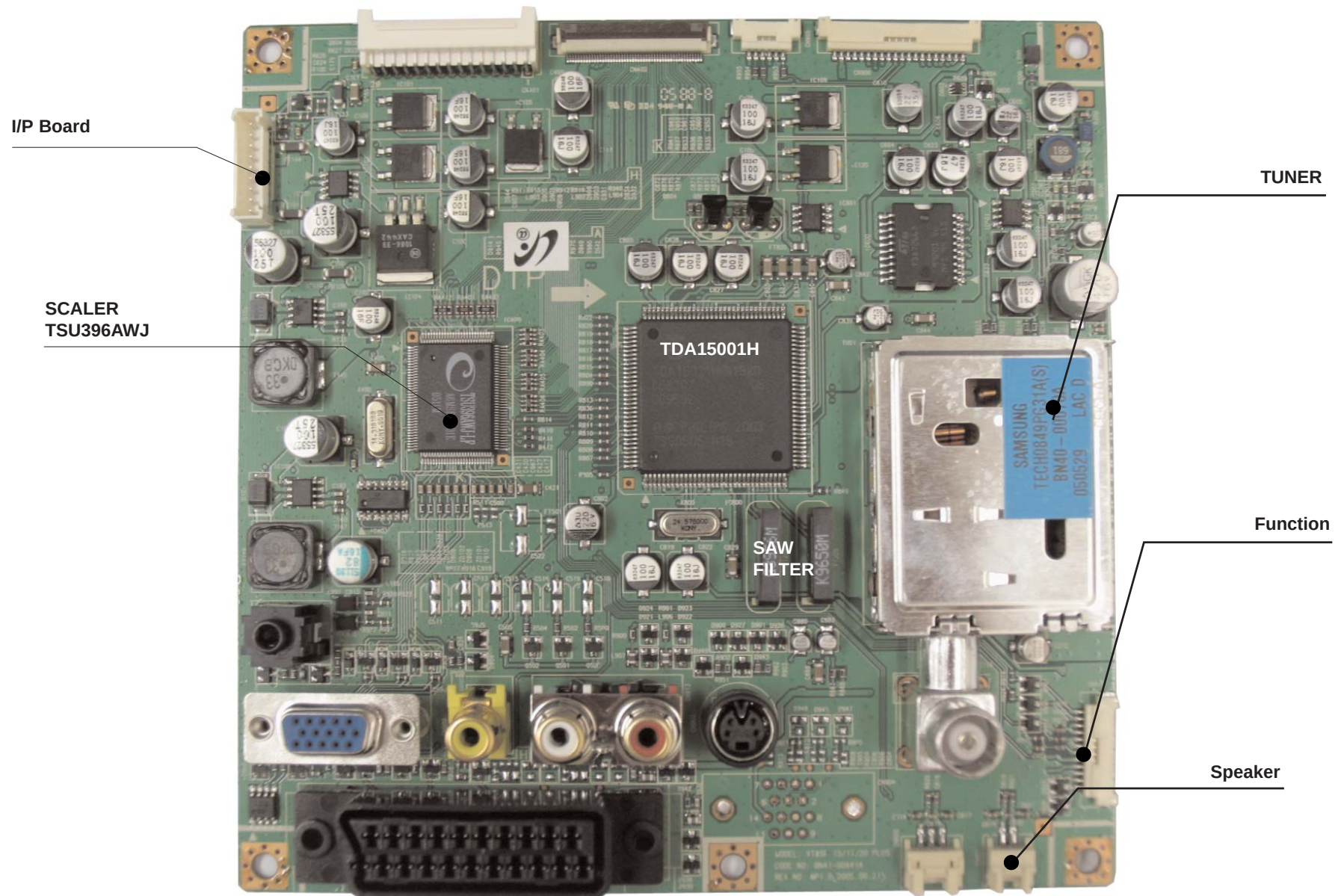


5 Exploded View & Parts List

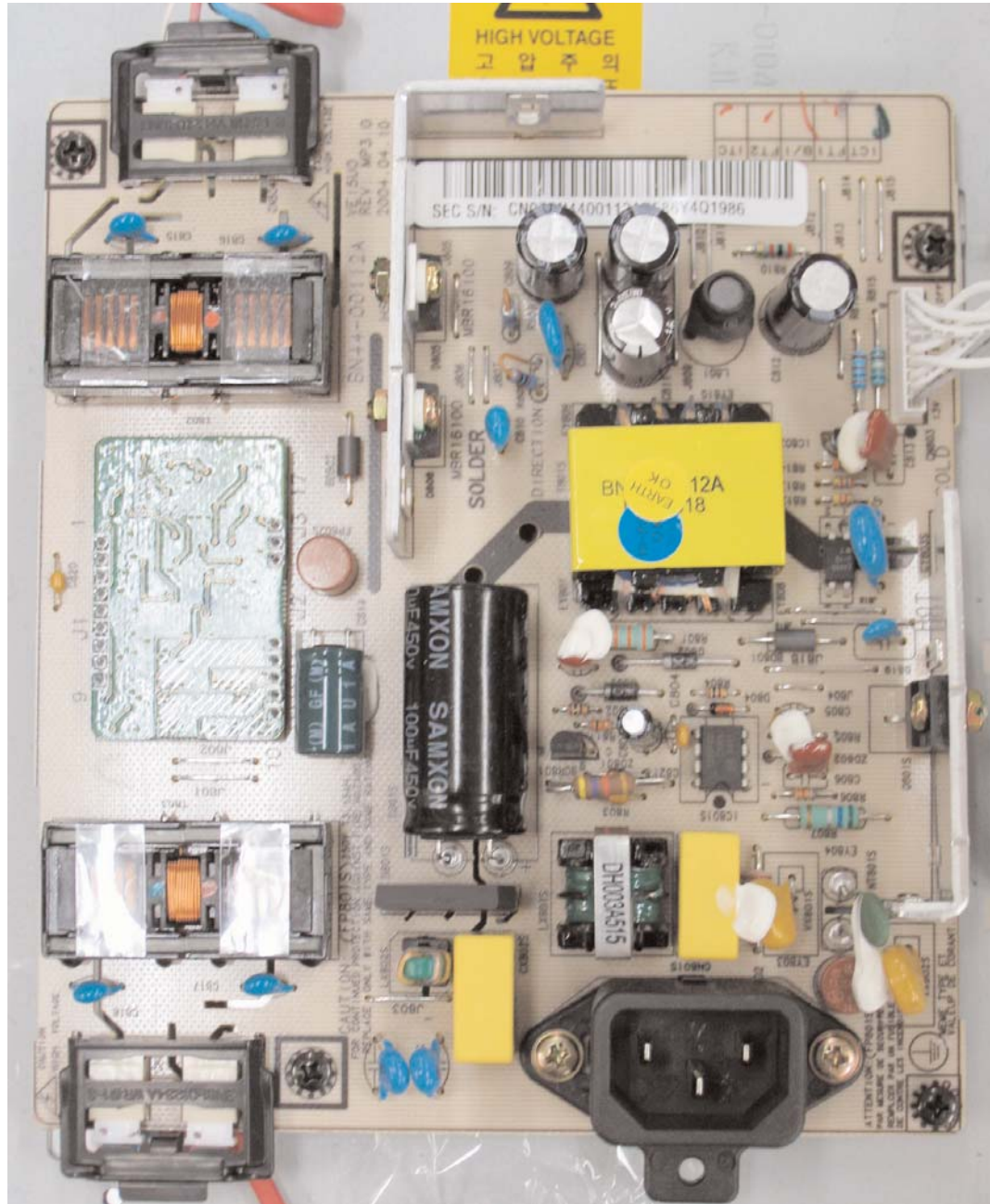
Location	Code.No	Item & Specification	Q'ty	SA/SNA	Remark
T0003	BN96-01158U	ASSY COVER P-FRONT;PLUS,20EO,ABS,V0,BK19	1	S.A	
M0215	BN07-00135A	LCD-PANEL;V201V1-T01,Rubens,640*480,448.	1	S.A	
M0174	BN44-00115A	IP BOARD;IP-51135T,VENICE 20",4.0MA,6.0M	1	S.A	
M0013	BN96-01159M	ASSY COVER P-REAR;PLUS,20UO,ABS,V0,BK19(	1	S.N.A	
M0013	BN96-01159N	ASSY COVER P-REAR;PLUS,20EO,ABS,V0,BK19(	1	S.A	
M0014	BN94-00747G	ASSY PCB MAIN;LW20M21CPX/XEC,PL20KU,VENI	1	S.N.A	

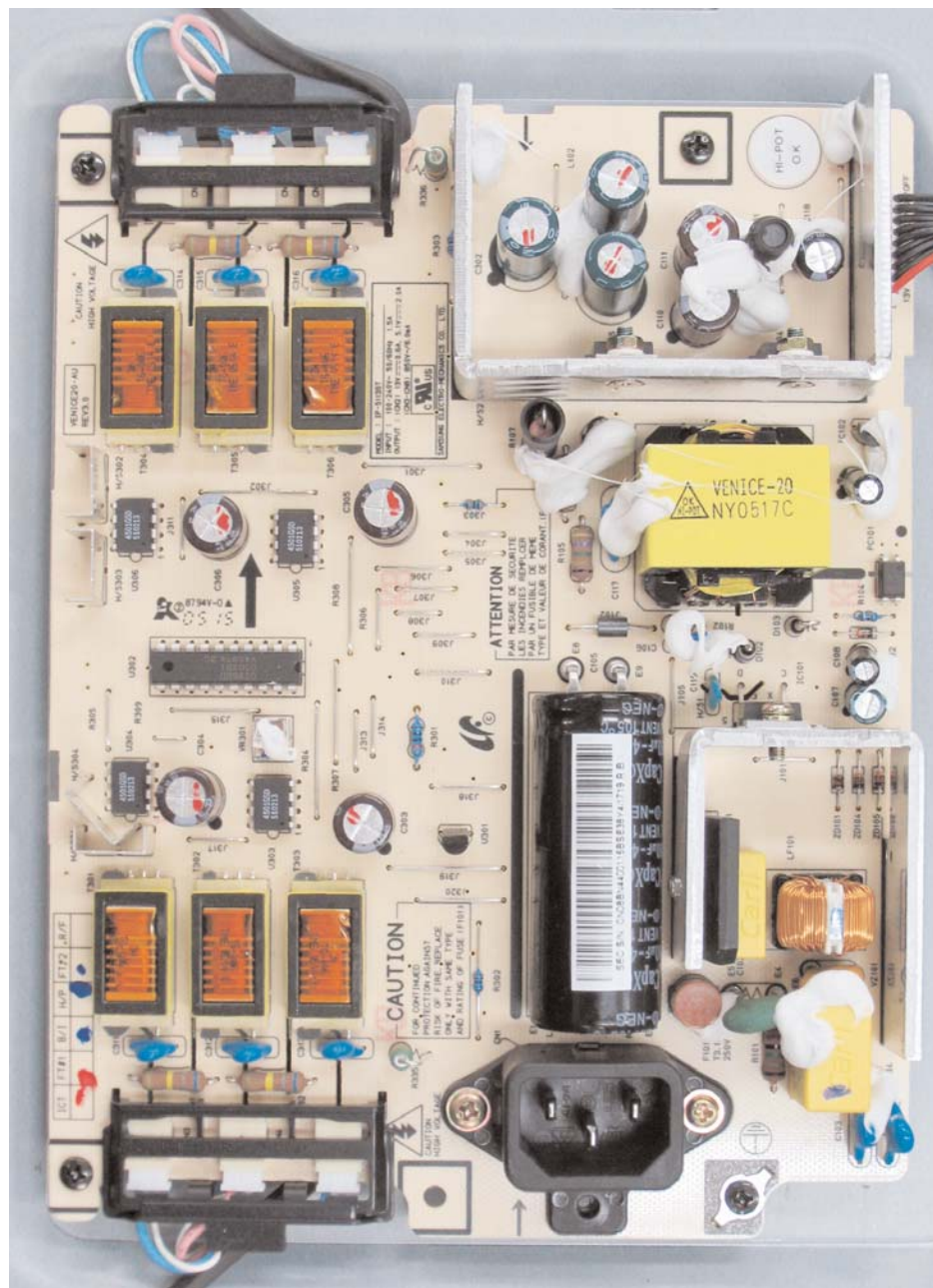
12 PCB Layout

12-1 Main PCB Layout(Top)



12-1-2 Power board (LW15M23CP)





Memo

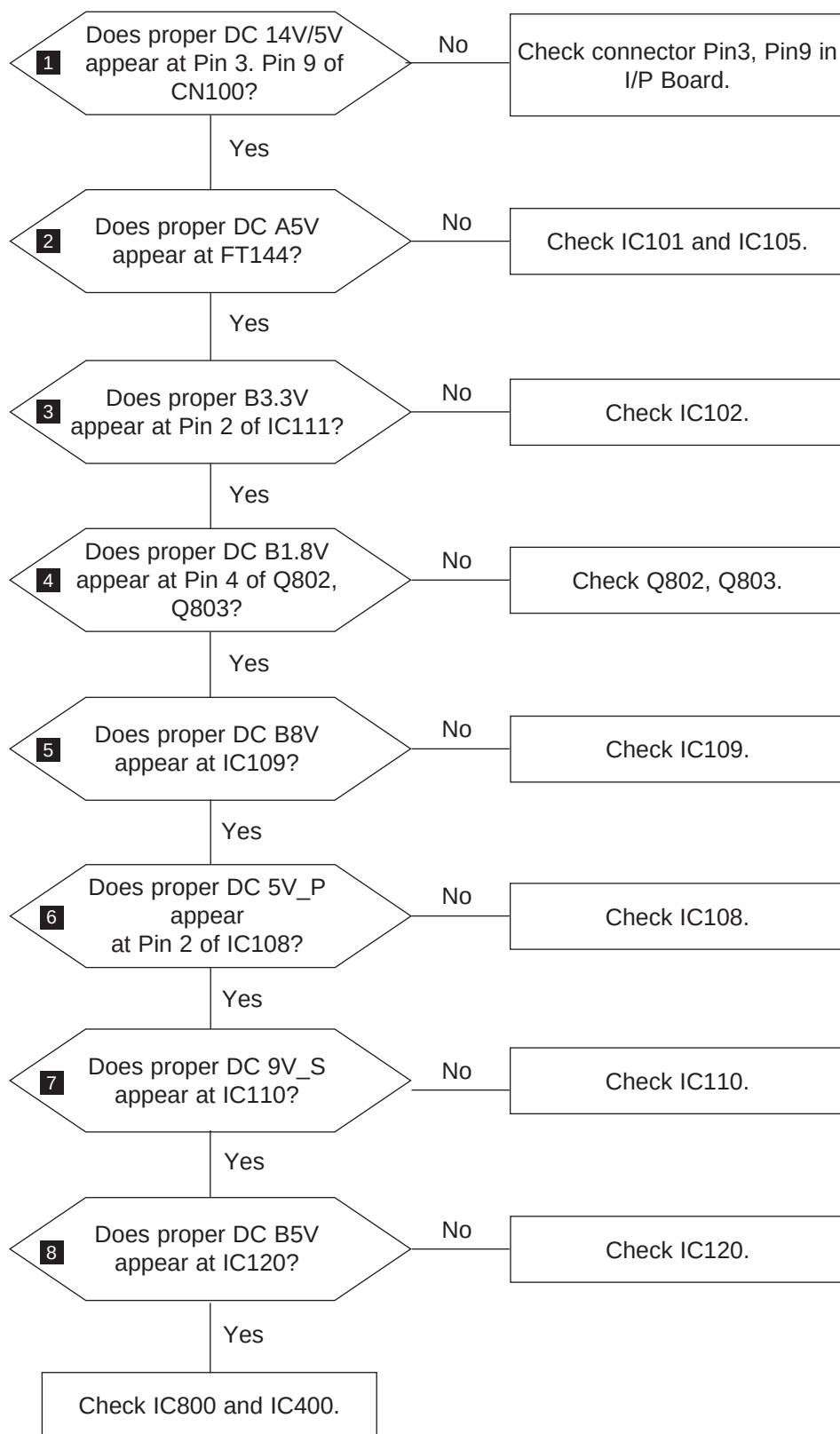
4 Troubleshooting

4-1 First Checklist for Troubleshooting

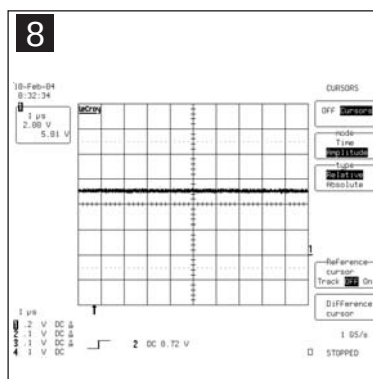
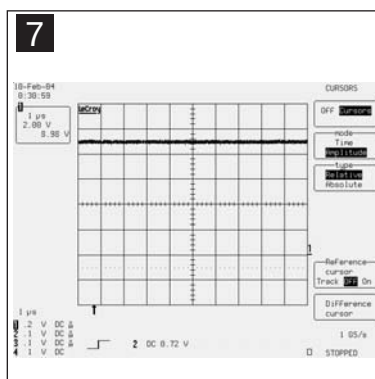
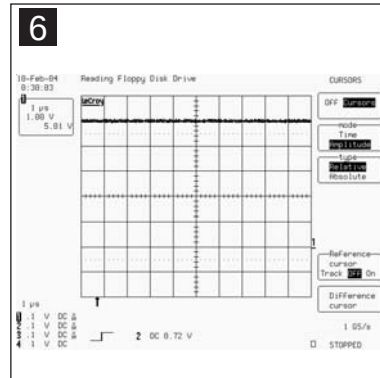
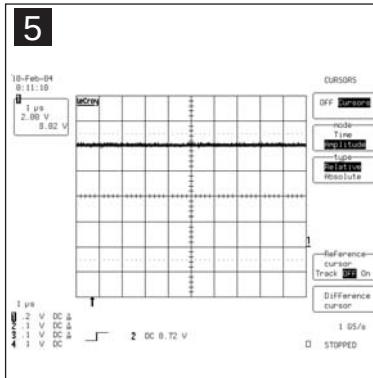
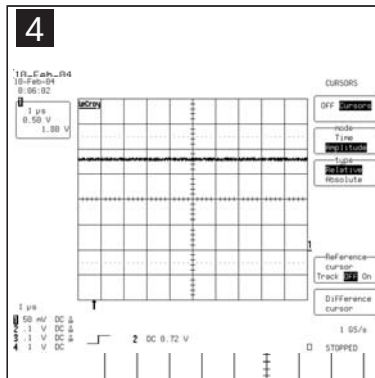
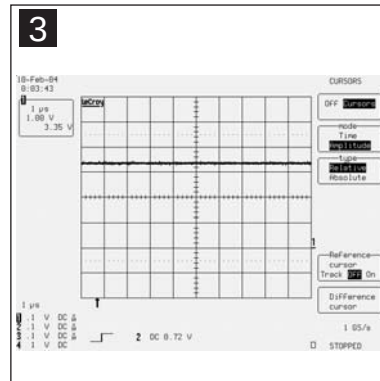
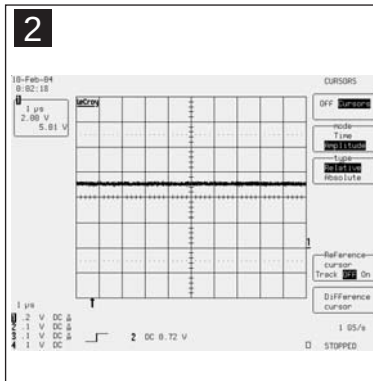
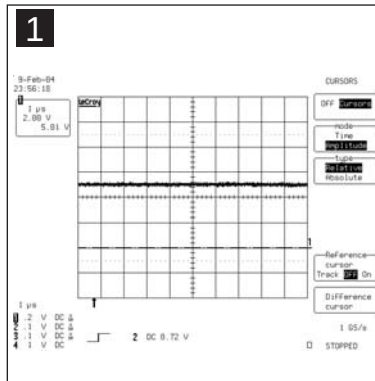
1. Check the various cable connections first.
 - Check to see if there is a burnt or damaged cable.
 - Check to see if there is a disconnected cable connection or a connection is too loose.
 - Check to see if the cables are connected according to the connection diagram.
2. Check the power input to the Video Board.
3. Check the voltage in and out between the SMPS ↔ Video Board, between the SMPS ↔ X, Y Drive Board, and between the Logic Boards.

4-2 Checkpoints by Error Mode

4-2-1 No Power

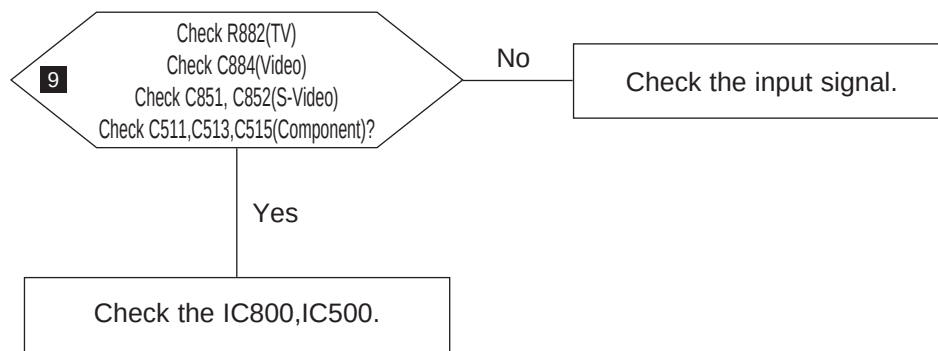


WAVEFORMS

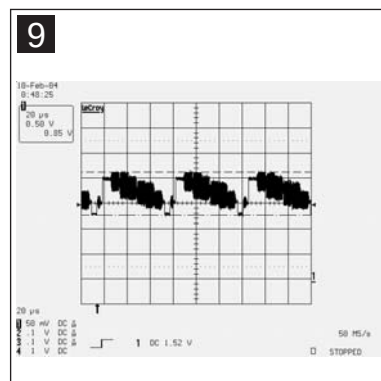


4 Troubleshooting

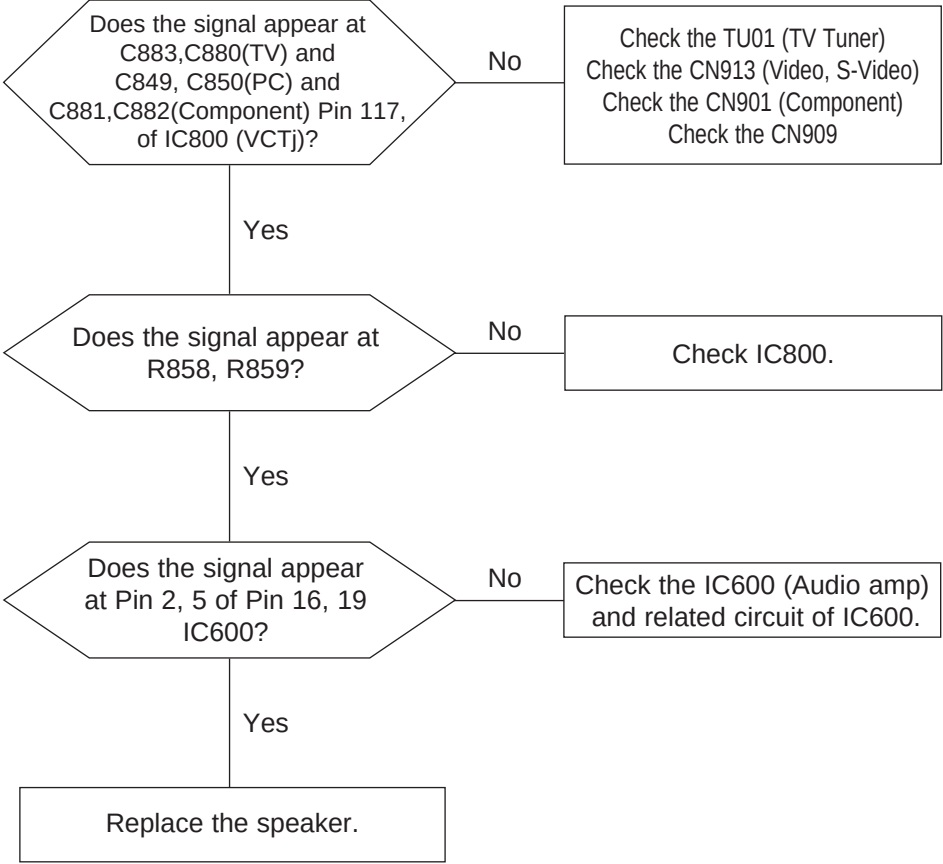
4-2-2 No Picture (TV, Video, S-Video, Component)



WAVEFORMS



4-2-3 No Sound



Memo

14 Reference Information

14-1 Technical Terms

-Dot Pitch

The image on a monitor is composed of red, green and blue dots. The closer the dots, the higher the resolution. The distance between two dots of the same color is called the 'Dot Pitch'. Unit: mm

-Vertical Frequency

The screen must be redrawn several times per second in order to create and display an image for the user. The frequency of this repetition per second is called Vertical Frequency or Refresh Rate. Unit: Hz
Example: If the same light repeats itself 60 times per second, this is regarded as 60 Hz.

-Horizontal Frequency

The time to scan one line connecting the right edge to the left edge of the screen horizontally is called Horizontal Cycle. The inverse number of the Horizontal Cycle is called Horizontal Frequency. Unit: kHz

-Interlace and Non-Interlace Methods

Showing the horizontal lines of the screen from the top to the bottom in order is called the Non-Interlace method while showing odd lines and then even lines in turn is called the Interlace method. The Non-Interlace method is used for the majority of monitors to ensure a clear image. The Interlace method is the same as that used in TVs.

-Plug & Play

This is a function that provides the best quality screen for the user by allowing the computer and the monitor to exchange information automatically. This monitor follows the international standard VESA DDC for the Plug & Play function.

-Resolution

The number of horizontal and vertical dots used to compose the screen image is called 'resolution'. This number shows the accuracy of the display. High resolution is good for performing multiple tasks as more image information can be shown on the screen.

Example: If the resolution is 1920 x 1200 , this means the screen is composed of 1920 horizontal dots (horizontal resolution) and 1200 vertical lines (vertical resolution).

-A2

This system uses two carriers to transmit voice data. Countries such as South Korea and Germany use this system.

-BTSC

Broadcast Television System Committee

The stereo broadcasting system that is used in most of the countries that have adopted the NTSC system, including the United States, Canada, Chile, Venezuela and Taiwan. It also refers to the organization that has been organized to promote its development and management.

-EIAJ

Electronic Industries Association of Japan.

-RF Cable

A round signal cable generally used for TV antennas.

-Satellite Broadcasting

Broadcasting service provided via satellite. Enables high picture quality and clear sound throughout the country regardless of the location of the viewer.

-Sound Balance

Balances the levels of the sound coming from each speaker in televisions with two speakers.

-Cable TV

Whereas the terrestrial broadcasting is delivered via frequency signals through the air, cable broadcasting is transmitted via a cable network. In order to view cable TV, one must purchase a cable receiver and hook it up to the cable network.

-CATV

"CATV" refers to the broadcasting service offered at hotels, schools and other buildings through their own broadcasting system, apart from VHF or UHF broadcasting by terrestrial broadcasters. The CATV programs may include movies, entertainment and educational programs. (Different from cable TV.)

CATV can be viewed only within the area in which the CATV service is offered.

S-Video

Short for "Super Video." S-Video allows up to 800 lines of horizontal resolution, enabling high-quality video.

-VHF/UHF

VHF indicates TV channels 2 to 13, and UHF indicates channels 14 through 69.

-Channel Fine Tuning

This feature allows the viewer to fine-tune the TV channel to obtain the best viewing conditions. The Samsung LCD TV has both automatic and manual channel fine-tuning features to enable the viewer to adjust their desired settings.

-External Device Input

External device input refers to video input from such external video devices as VCRs, camcorders and DVD players, separate from a TV broadcast.

14-2 Pin Assignments

14-2-1 Scart

No	PIN
1	Sound R out
2	Sound R In
3	Sound L out
4	GND
5	GND
6	Sound L In
7	Cb
8	ID
9	GND
10	NC
11	Y
12	NC
13	GND
14	GND
15	Cr
16	BL In
17	GND
18	GND
19	Video Out
20	Video In
21	GND

14-2-3 A/V

RCA Yellow	CVBS
RCA White	Audio L
	GND
RCA Red	Audio R
	GND

14-2-2 S-Video

Pin	Separate
1	GND
2	Y
3	C
4	GND
5	GND

14-2-4 D-SUB

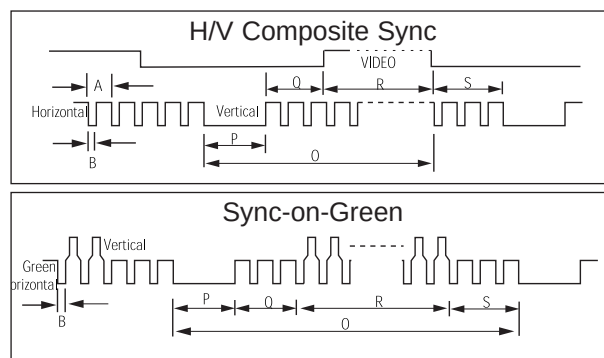
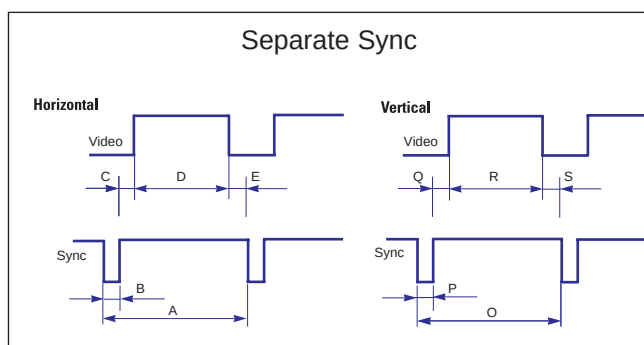
Pin	Separate
1	Red
2	Green
3	Blue
4	GND
5	GND (DDC Return)
6	GND-Red
7	GND-Green
8	GND-Blue
9	No Connection
10	GND-Sync / Self Test
11	GND
12	DDC Data
13	H - Sync
14	V - Sync
15	DDC Clock

14-3 Timing Chart

This section of the service manual describes the timing that the computer industry recognizes as standard for computer-generated video signals.

Table 2-1 Timing Chart

Mode Timing	IBM		VESA				
	VGA2/ 70 Hz 720 x 400	VGA3/ 60 Hz 640 x 480	640/75 Hz, 60Hz, 72Hz 640 x 480	800/75 Hz, 56Hz, 60Hz, 72Hz 800 x 600	1024/60Hz 1024 x 768	1024/75Hz 1024 x 768	1280/75Hz, 50Hz 1280x1024
fH (KHz)	31.469	31.469	37.500	46.875	48.363	60.023	79.976
A μ sec	31.777	31.778	26.667	21.333	20.677	16.660	12.504
B μ sec	3.813	3.813	2.032	1.616	2.092	1.219	1.067
C μ sec	1.589	1.589	3.810	3.232	2.462	2.235	1.837
D μ sec	26.058	26.058	20.317	16.162	15.754	13.003	9.481
E μ sec	0.318	0.318	0.508	0.323	0.369	0.203	0.119
fV (Hz)	70.087	59.940	75.000	75.000	60.004	75.029	75.025
O msec	14.268	16.683	13.333	13.333	16.666	13.328	13.329
P msec	0.064	0.064	0.080	0.064	0.124	0.050	0.038
Q msec	0.858	0.794	0.427	0.448	0.600	0.466	0.475
R msec	13.155	15.761	12.800	12.800	15.880	12.795	12.804
S msec	0.191	0.064	0.027	0.021	0.062	0.017	0.013
Clock Freq. (MHz)	28.322	25.175	31.500	49.500	75.000	78.750	135.000
Polarity H.Sync	Negative	Negative	Negative	Positive	Negative	Positive	Positive
V.Sync	Positive	Negative	Negative	Positive	Negative	Positive	Positive
Remark	Separate	Separate	Separate	Separate	Separate	Separate	Separate



A : Line time total

B : Horizontal sync width

O : Frame time total

P : Vertical sync width

C : Back porch

D : Active time

Q : Back porch

R : Active time

E : Front porch

S : Front porch

14-4 Preset Timing Modes

If the signal transferred from the computer is the same as the following Preset Timing Modes, the screen will be adjusted automatically. However, if the signal differs, the screen may go blank while the power LED is on. Refer to the video card manual and adjust the screen as follows.

Mode	Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Pixel Clock Frequency (MHz)	Sync Polarity (H/V)
IBM	640 X 350	31.469	70.086	25.175	+ / -
	720 X 400	31.469	70.087	28.322	- / +
	640 X 480	31.469	59.940	25.175	- / -
VESA	640 X 480	35.000	70.000	28.560	- / -
	640 X 480	37.861	72.809	31.500	- / -
	640 X 480	37.500	75.000	31.500	- / -
	800 X 600	37.879	60.317	40.000	+ / +
	800 X 600	48.077	72.188	50.000	+ / +
	800 X 600	46.875	75.000	49.500	+ / +
	800 X 600	43.750	70.000	45.500	- / -
	1024 X 768	48.363	60.004	65.000	- / -
	1024 X 768	56.476	70.069	75.000	- / -
	1024 X 768	56.672	72.000	78.434	- / -
	1024 X 768	60.023	75.029	78.750	+ / +
	1360 X 768	47.712	60.015	85.800	+ / +

14-5 Panel Description

Maker	VENDOR P/N	PANEL_CODE	PANEL_ABB	STICKER_CODE	Remarks
SEC	LT140X1-002	BN07-00004A	SA	BN68-00239H	-
SEC	LT150XS-L01	BN07-00009A	SB		-
SEC	LT150XS-L01-B	BN07-00022A	SC		-
SEC	LTM150XS-L02	BN07-00005A	SD		-
SEC	LT181E2-132	BN07-00001A	SE		-
SEC	LT150XS-T01	BN07-00010A	SF		-
SEC	LTM181E3-132	BN07-00019A	SG		-
SEC	LT170E2-131	BN07-10001D	SH		-
SEC	LT181E2-131	BN07-10001E	SJ		-
SEC	LTM170E4-L01	BN07-00018A	SK		-
SEC	LTM240W1-L01	BN07-00015A	SL		-
SEC	LTM213U3-L01	BN07-00016A	SM		-
SEC	LTM150XH-L01	BN07-00026A	SN		-
SEC	LTM150XH-L03	BN07-00027A	SP		-
SEC	LTM150XS-L01	BN07-00032A	SQ		DELL(ZPD)
SEC	LTM181E4-L01	BN07-00034A	SR		PVA
SEC	LTM170EH-L01	BN07-00036A	SS		TN
SEC	LTM170E5-L01	BN07-00037A	SU		PVA
SEC	LTM150XH-L11	BN07-00041A	SV		-
SEC	LTM213U4-L01	BN07-00039A	SW		PVA
SEC	LTM150XH-L01(ZPD)	BN07-00045A	SX		ZPD
SEC	LTM150XH-L04	BN07-00046A	SY		New panel with high brightness
SEC	LTM170W1-L01	BN07-00047A	SZ		Panel for TV
SEC	LTM150XH-L06	BN07-00053A	EA		Panel for TV/ High luminance for 450cd _ SONY&EOS Team Panel for TV
SEC	LTM153W1-L01	BN07-00054A	EB		Use NIKE MODEL
SEC	LTM170EH-L05	BN07-00055A	EC		Panel EOS proj. for high brightness of 17" EH-L05
SEC	LTM170E5-L03	BN07-00056A	ED		Dell 1702FP pro. E4. EH mechanical Compatible
SEC	LTM190E1-L01	BN07-00057A	EE		DELL 1900 FP
SEC	LTM181E5-L01	BN07-00061A	EF		18" narrow bezel GH18PS
SEC	LTM150XP-L01	BN07-00065A	EG		AMLCD PVA PANEL
SEC	LTM240W1-L02	BN07-00062A	EH		Panel for 15" Wide TV
SEC	LTM170EU-L01	BN07-00071A	EJ		Slim design, TN
SEC	LTM170E5-L04	BN07-00072A	EK		E5-L04 6 bits FRC... for IBM
SEC	LTA220W1-L01	BN07-00074A	EL		Panel for 22" TV
SEC	LTM170E6-L02	BN07-00075A	EM		AMLCD Narrow & slim design 17" PVA mode
SEC	LTM170W1-L01	BN07-00082A	EN		LTM170W1-L01 ZPD panel
SEC	LTM170EH-L01	BN07-00080A	EP		LTM170EH-L01 ZPD panel
SEC	LTM170E5-L01	BN07-00081A	EQ		LTM170E5-L01 ZPD panel
SEC	LTM170EH-L05	BN07-00083A	ER		LTM170EH-L05 ZPD panel
SEC	LTM170E5-L03	BN07-00084A	ES		LTM170E5-L03 ZPD panel
SEC	LTM170EU-L01	BN07-00085A	ET		LTM170EU-L01 ZPD panel
SEC	LTM170E5-L04	BN07-00086A	EU		LTM170E5-L04 ZPD panel
SEC	LTM170E6-L02	BN07-00087A	EV		LTM170E6-L02 ZPD panel
SEC	LTM150XH-L06	BN07-00091A	EW		Color coordinates change for LCD TV
SEC	LTM153W1-L01	BN07-00092A	EX		AMLCD WIDE 15",9/10
SEC	LTM170W1-L01	BN07-00100A	EY		Color Coordinates change code management
SEC	LTM170EH-L05	BN07-00097A	EZ		LTM170E5-L05 Color Coordinates Change Panel Code
SEC	LTA400W1-L01	BN07-00109A	S1		PANEL of AMLCD 40" TV
SEC	LTM153W1-L01	BN07-00110A	S2		Color coordinates change 0.280/0.290, 10000k & ZPD Panel
SEC	LTM150XH-L06	BN07-00111A	S3		Color coordinates change 0.280/0.290, 10000k & ZPD Panel

Maker	VENDOR P/N	PANEL_CODE	PANEL_ABB	STICKER_CODE	Remarks
SEC	LTM170W1-L01	BN07-00112A	S4		Color coordinates change 0.280/0.290, 10000k & ZPD Panel
SEC	LTM170EH-L05	BN07-00113A	S5		Color coordinates change 0.280/0.290, 10000k & ZPD Panel
SEC	LTM220W1-L01	BN07-00114A	S6		ZPD Panel for AMLCD 22" TV
SEC	LTM150XH-L06	BN07-00117A	S7		ZPD Panel code
SEC	LTM153W1-L01	BN07-00118A	S8		ZPD Panel code
SEC	LTM170WP-L01	BN07-00119A	S9		PVA Panel for NIKE
SEC	LTM213U4-L01	BN07-00039A	E1		21.3" NARROW
SEC	LTA260W1-L01	BN07-00121A	E2		VENUS
SEC	LTA220W1-L01	BN07-00074B	E3		"Panel B-level panel code for 22" TV Panel "
SEC	LTA320W1-L01	BN07-00108A	E4		"Panel for AMLCD 32" TV"
SEC	LTM213U4-L01	BN07-00124A	E5		NARROW BEZEL 21 " PANEL
SEC	LTM170E6-L04	BN07-00129A	E6		"HIGHLAND 17" LOW PANEL (Panel only for TCO03)"
SEC	LTM190E1-L01	BN07-00088A	E7		LTM190E1-L01 ZPD panel
SEC	M150X4-L06	BN07-00137A	E8		15" Narrow & Slim panel
SEC	LTA170V1	BN07-00139A	E9		"17" Panel for Muse 4:3 VGA TV"
SEC	LTM190E1-L02	BN07-00128A	E10		"New Panel from AMLCDI, Specification : 6bit Driver IC"
SEC	LTM170EX-L01	BN07-00143A	E11		"Development new Panel from AMLCD"
SEC	LTM170E8-L01	BN07-00144A	E12		"Development new Panel from AMLCD"
SEC	LTM170E6-L04	BN07-00129B	E13		"ZPD panel for AMLCD (Panel only for TCO03)"
SEC	LTA320W1-L02	BN07-00108B	E14		"Creat B-level Panel code for AMLCD 32" TV"
SEC	LTM190E1-L03	BN07-00151A	E15		"Development new 19" Panel form AMLCD (Panel only for TCO03)"
SEC	LTM240W1-L03	BN07-00134A	E16		"AMLCD 24" panel development"
SEC	LTM190E1-L02	BN07-00128B	E17		"New Panel from AMLCD, Specification : 6bit Driver IC(ZPD)"
SEC	LTM190E4-L01	BN07-00145A	E18		"AMLCD 24" new panel development"
SEC	LTM170E8-L01	BN07-00158A	E19		"ZPD code derivation"
SEC	LTM170EX-L01	BN07-00159A	E20		"ZPD code derivation"
SEC	LTM190E1-L03	BN07-00151B	E21		"Creat new panel code for AMLCD 19" (Panel only for TCO03)"
SEC	LTA460H1-L01	BN07-00157A	E22		"creat panel code for AMLCD 46" TV "
SEC	LTM170EU-L11	BN07-00160A	E23		"creat new panel code for AMLCD 17" (Panel only for TCO03)"
SEC	LTM240W1-L03	BN07-00134B	E24		"24" panel ZPD code derivation"
SEC	LTM190E4-L01	BN07-00145B	E25		"AMLCD 19" ZPD Panel code derivation"
SEC	LTM240W1-L03	BN07-00134B	E26		"24" panel ZPD code derivation"
SEC	LTM150XO-L01	BN07-00164A	E27		"AMLCD 15" XO-L01 new panel development"
SEC	LTM150XO-L01	BN07-00164B	E28		"AMLCD 15" XO-L01 ZPD code derivation"
SEC	LTM170EU-L11	BN07-00160B	E29		"AMLCD 17" NEW panel code derivation"
SEC	LTA320W2-L01	BN07-00172A	SPZ		AMLCD 32" NEW panel
SEC	LTM213U4-L01	BN07-00124B	SPZ		21.3" Narrow PANEL ZPD Panel derivation
SEC	LTM170EU-L11	BN07-00189A	STH		AMLCD EU-L11 Pb free panel code derivation
SEC	LTM170EU-L11	BN07-00189B	STZ		AMLCD EU-L11 Pb free panel ZPD code derivation
SEC	LTM240W1-L04	BN07-00188A	SPH		24" A-DCC new panel development
SEC	LTM240W1-L04	BN07-00188B	SPZ		24" A-DCC panel ZPD code derivation
SEC	LTM190EX-L01	BN07-00191A	STH		AMLCD 19" TN new Panel
SEC	LTM190EX-L02	BN07-00191B	STZ		AMLCD 19" TN new Panel ZPD derivation
SEC	LTA230W1-L02	BN07-00184A	SPZ		AMLCD 23" 16:9 new Panel
SEC	LTA260W2-L01	BN07-00185A	SPZ		AMLCD 26" 16:9 new Panel
SEC	LTM240M1-L01	BN07-00195A	SPH		24" panel with high brightness development
SEC	LTA400W2-L01	BN07-00186A	SPZ		AMLCD 40" 16:9 new Panel
SEC	LTM150XO-L01	BN07-00197A	STH		AMLCD 15" XO-L01 Pb free panel code
SEC	LTM150XO-L01	BN07-00197B	STZ		AMLCD 15" XO-L01 Pb free panel ZPD code
SEC	LTM170EU-L21	BN07-00202A	STZ		AMLCD EU-L21 ZPD new code derivation

14 Reference Infomation

Maker	VENDOR P/N	PANEL_CODE	PANEL_ABB	STICKER_CODE	Remarks
SEC	LTA460W2-L03	BN07-00187A	SPZ		BEETOVEN 46"ZPD new panel
SEC	LTM240M1-L01	BN07-00195B	SPZ		24" igh brightness panel ZPD code derivation
SEC	M170EX-L21	BN07-00206A	STZ		AMLCD LTM170EX-L21 ZPD new code derivation
SEC	LTA460H3-L01	BN07-00200A	SPZ		AMLCD 46" LED BLU panel
SEC	LTM170EU-L15	BN07-00214A	STZ		AMLCD EU-L15 TV high brightness ZPD new code derivation
SEC	LTM170E8-L21	BN07-00218A	SPZ		AMLCD LTM170E8-L21 PVA ZPD new code derivation
SEC	LTM190EX-L21	BN07-00222A	STZ		DISPLAY LCD
SEC	LTM201U1-L01	BN07-00190B	SPZ		AMLCD 20.1" Normal panel ZPD code derivation
SEC	LTM190E4-L21	BN07-00223A	SPZ		HAYDN 17" PZD code PANEL derivation
SEC	LTA570H1-L01	BN07-00196A	SPZ		AMLCD 57" new panel development
SEC	LTM150XO-L21	BN07-00229A	STZ		AMLCD 15" XO-L21 8ms panel code
SEC	LTA260W2-L11	BN07-00239A	SPZ		AMLCD 26" 16:9 7Line new Panel
SEC	LTA400WS-LH1	BN07-00245A	SPZ		AMLCD 40" 16:9 SPVA 90% new Panel
SEC	LTM213U6-L01	BN07-00231A	SPZ		AMLCD 21.3" PVA new Panel Code
SEC	LTA320WS-LH2	BN07-00244A	SPZ		AMLCD 32" 16:9 SPVA 90% new Panel
SEC	LTA400WS-LH1	BN07-00245A	SPZ		AMLCD 40" 16:9 SPVA 90% new Panel
SEC	LTM190M2-L01	BN07-00227A	STZ		AMLCD 19" TN Wide new Panel Code
SEC	LTM201UX-L01	BN07-00249A	STZ		AMLCD 20.1" TN new Panel Code
CPT	CLAA150XG09	BN07-00141A	PA		"CPT 15"" Monitor new panel development"
CPT	CLAA170EA02	BN07-00148A	PB		"17"" CPT NEW development panel"
CPT	CLAA170EA02	BN07-00148B	PC		"17"" CPT ZPD panel code derivation"
CPT	CLAA150XG09	BN07-00141B	PTZ		"CPT 15"" panel ZPD code derivation (GOYA-PJT)"
CPT	CLAA150XP01	BN07-00173A	PTH		CPT 15" PSWG code derivation
CPT	CLAA150XP01	BN07-00173B	PTZ		CPT 15" PSWG panel ZPD code
CPT	CLAA170EA07	BN07-00174A	PTH		"CPT 17"" PSWG panel code derivation
CPT	CLAA170EA07	BN07-00174B	PTZ		CPT 17"" PSWG type new Panel code""
CPT	CLAA170EA07	BN07-00174B	PTZ		CPT 17" PSWG type new Panel code
CPT	CLAA170EA07Q	BN07-00220A	PTZ		CPT 17" PSWG R/T 8msec code derivation
CPT	CLAA170EA07Q	BN07-00220B	PTH		CPT 17" PSWG R/T 8msec HPD code derivation
CPT	CLAA150XP01F	BN07-00236A	PTZ		CPT 15" PSWG panel ZPD & Lead free code derivation
TOSHIBA	LTM15C419(A)	BN07-00002A	TA		-
TOSHIBA	LTM15C423(B)	BN07-00006A	TB		-
TOSHIBA	LTM18C161	BN07-00008A	TC		-
TOSHIBA	LTM15C443	BN07-00031A	TD		-
TOSHIBA	LTM15C458	BN07-00043A	TE		-
TOSHIBA	LTM15C458S	BN07-00077A	TF		"TSB 15"" high brightness Panel"
TOSHIBA	LTM15C458	BN07-00078A	TG		Toshiba ZPD panel
TOSHIBA	LTM15C458S	BN07-00099A	TH		TSB LTM15C458S (ZPD)
HANNSTAR	HSD150MX41A(A)	BN07-00020A	NA		"TTL type"
HANNSTAR	HSD150MX12	BN07-00030A	NB		"TTL type"
HANNSTAR	HSD170ME13	BN07-00180A	NTH		Hannstar 17" TN new panel development
HANNSTAR	HSD170ME13	BN07-00180B	NTZ		Hannstar 17" TN new panel development ZPD code derivation
HANNSTAR	HSD190ME12	BN07-00210A	NTZ		Hannstar 19" TN new panel development
HANNSTAR	HSD150MX17-A	BN07-00226A	NTZ		Hannstar 15" slim panel ZPD code derivation
TORISAN	TM150XG-22L03(A)	BN07-00021A	RA		-
TORISAN	TM150XG-26L06	BN07-00042A	RB		-

Maker	VENDOR P/N	PANEL_CODE	PANEL_ABB	STICKER_CODE	Remarks
TORISAN	TM181SX-76N01	BN07-00048A	RC		-
TORISAN	TM150XG-26L06	BN07-00059A	RD		15" XGA TN MODE(ZPD)
TORISAN	TM290WX-71N31	BN07-00063A	RE		"RS24NS (TORISAN 29" NEW PANEL)"
TORISAN	TM396WX-71N31	BN07-00064A	RF		"RS24NS (TORISAN 40" NEW PANEL)"
TORISAN	TM150XG-26L09	BN07-00073A	RG		"Panel for 15" TV"
TORISAN	TM150XG-26L10	BN07-00089A	RH		"L10(change except D/C) ZPD"
TORISAN	TM150XG-26L10	BN07-00090A	RJ		L10 NORMAL
TORISAN	TM190SX-70N01	BN07-00098A	RK		Torisan 19" Panel
TORISAN	TM181SX-76N01	BN07-00106A	RL		ZPD Panel code
TORISAN	TM190SX-70N01	BN07-00107A	RM		ZPD Panel code
TORISAN	TM290WX-71N31	BN07-00115A	RN		"Color Coordinates change panel for TORISAN 29" TV"
TORISAN	TM396WX-71N31	BN07-00116A	RP,Q		"Color Coordinates change panel for TORISAN 40" TV"
TORISAN	TM220WX-71N31	BN07-00125A	RR		"Development TORISAN 22" TV PANEL (ZPD)"
TORISAN	TM220WX-71N31	BN07-00127A	RS		"Development TORISAN 22" TV PANEL (HPD)"
TORISAN	TM396WX-71N32A	BN07-00150A	RT		120V inverter Exclusive panel
TORISAN	TM190SX-70N02	BN07-00154A	RMH		Torisan 6bit panel code Derivation
TORISAN	TM190SX-70N02	BN07-00154B	RMZ		Torisan 6bit panel code Derivation
TORISAN	TM150XG-A01	BN07-00162A	RTH		Torisan 15" Narrow & Slim panel development
TORISAN	TM150XG-A01	BN07-00162B	RTZ		Torisan 15" N&S panel ZPD code Derivation
SHARP	LQ181E1DG11(A)	BN07-10001C	PA		-
SHARP	LQ150X1LW71	BN07-00067A	PB		SHARP 15" PVA PANEL
SHARP	LQ370T3LZ41	BN07-00216A	FAZ		Rome2
HITACHI	TX38D12VC0CAA(A)	BN07-00003A	HA		-
HITACHI	TX43DVCOCAB	BN07-00060A	HB		17" SXGA PVA MODE
HITACHI	TX43D15VCOCAB	BN07-00101A	HC		ZPD Panel
HITACHI	TX51D11VCOCAB	BN07-00122A	HD		20.1" NARROW
HITACHI	TX54D11VCOCAB	BN07-00123A	HE		21.3" NARROW
HITACHI	TX80D12VCOCAB	BN07-00169A	HIZ		"Development new panel for Hitachi 32" TV (ZPD)"
HITACHI	TX54D11VCOCAB	BN07-00123B	HIZ		Hitachi 21.3"ZPD panel
IBM	ITSX94S	BN07-00017A	IA		-
UNIPAC	UM170E0	BN07-00028A	UA		Loaded by cisdba
HYUNDAI	HT15X13	BN07-00035A	DA		-
HYUNDAI	HT17E11-200	BN07-00049A	DB		TN MODE
HYUNDAI	HT17E11-300	BN07-00093A	DC		HT17E11-300 ZPD panel
HYUNDAI	HT17E11-400	BN07-00094A	DD		HT17E11-400 normal panel
HYUNDAI	HT17E11-400	BN07-00095A	DE		HT17E11-400 ZPD panel code
HYUNDAI	HT17E12	BN07-00096A	DF		HT17E12 (Narrow & slim Design)
HYUNDAI	HT17E12	BN07-00105A	DG		ZPD Panel code
HYUNDAI	HT15X15-D00	BN07-00146A	DH		"Development for Ares 15" Hydis TV"
HYUNDAI	HT15X15-D01	BN07-00146B	DJ		"Derivation panel HPD for Ares 15" Hydis TV "
HYUNDAI	HT17E13-100	BN07-00167A	DTH		"PINEHURST-2(IBM) PJT 17" HYDIS PANEL Derivation"
HYUNDAI	HT17E13-100	BN07-00167B	DTZ		"PINEHURST-2(IBM) Hydis 17" ZPD code Derivation"
HYUNDAI	HT170EX1-100	BN07-00240A	DTZ		17" EX compatible Hydis Slim panel development
ACER	L170E3	BN07-00044A	AA		TN(ADT)
ACER	M170EN05	BN07-00076A	AB		AU 17" Panel (Narrow & slim design)

14 Reference Infomation

Maker	VENDOR P/N	PANEL_CODE	PANEL_ABB	STICKER_CODE	Remarks
ACER	M170EN05	BN07-00102A	AC		ZPD Panel code
ACER	M190EN02	BN07-00170A	AMH		"AU Monitor 19"" new panel development (P19-1S)"
ACER	M190EN02	BN07-00170B	AMZ		"AU 19"" ZPD code derivation (ZPD)"
ACER	M170EN06	BN07-00171A	ATH		"AU Monitor 17"" New panel development "
ACER	T260XW01	BN07-00163A	AMZ		"AU 26"" new panel development (NF26EO)"
ACER	A201SN01	BN07-00177A	ATZ		"AU TV panel 20.1"" TN SVGA new panel development"
ACER	M170EN06	BN07-00171B	ATZ		AU Monitor 17" ZPD code derivation
ACER	T315XW01	BN07-00194A	AMZ		AU 32" new
ACER	M170EG01	BN07-00192A	ATH		AU TN PSWG type new Panel code
ACER	M170EG01	BN07-00192B	ATZ		AU TN PSWG type NEW panel code derivation
ACER	M190EN04	BN07-00203A	ATH		AU Monitor 19" ZPD new Panel code
ACER	T260XW02	BN07-00208A	AMZ		AUO 26" ZPD panel
ACER	M170EG01 V8	BN07-00221A	ATZ		AU TN PSWG type new Panel (8msec) ZPD code derivation
ACER	T260XW02	BN07-00233A	AMZ		AUO 26" Panel new (Cosmetic spec down grade)
ACER	T315XW01	BN07-00234A	AMZ		AUO 32" Grade new (Cosmetic spec down grade)
ACER	M190EN03	BN07-00224A	AMZ		AU Monitor 19" MVA new code derivation
ACER	T315XW01	BN07-00237A	AMZ		LCD TV VE project new
ACER	T315XW01	BN07-00238A	AMZ		LCD TV VE project new
ACER	M201UN02 V3	BN07-00168A	AMZ		
ACER	M190EN04 V7	BN07-00248A	ATZ		AU Monitor 19" TN Glare ZPD new code derivation
CHIMEI	M170E3-L01	BN07-00050A	CA		TN PANEL
CHIMEI	M150X3-L01	BN07-00051A	CB		COMPATIBLE
CHIMEI	M170E4-L01	BN07-00052A	CC		MVA PANEL
CHIMEI	M150X2-L01	BN07-00066A	CD		CHIME 15"i PVA PANEL
CHIMEI	M150X3-L01	BN07-00079A	CE		Chimei ZPD panel
CHIMEI	M170E3-L01	BN07-00103A	CF		ZPD Panel code
CHIMEI	M170E4-L01	BN07-00104A	CG		ZPD Panel code
CHIMEI	V296W1-L01	BN07-00120A	CH		MVA
CHIMEI	M170E6-L02	BN07-00126A	CJ		HIGHLAND 17" LOW PANEL
CHIMEI	M190E2-L01	BN07-00131A	CK		GH19AS,BS CHIMEI PANEL
CHIMEI	M150X4-L06	BN07-00137A	CL		15" Narrow & Slim panel
CHIMEI	M170E6-L01	BN07-00133A	CM		"2003-03-11 vendor change"
CHIMEI	M170E6-L01	BN07-00133B	CN		ZPD derivation panel
CHIMEI	V201V1-T01	BN07-00135A	CP		CHIMEI 20.1" panel development
CHIMEI	M170E6-L02	BN07-00126B	CQ		"HIGHLAND 17"" LOW PANEL ZPD derivation panel"
CHIMEI	M170E6-L05	BN07-00152A	CR		"CMO 17"" new panel development code"
CHIMEI	M170E6-L05	BN07-00152B	CS		"CMO 17"" ZPD panel code derivation"
CHIMEI	M150X4-L06	BN07-00137B	CT		Chimei 15" Narrow & Slim panel ZPD derivation
CHIMEI	M170E5-L05	BN07-00165A	CTH		CMO 17" new panel development code (GOYA2-PJT)
CHIMEI	M170E5-L05	BN07-00165B	CTZ		CMO 17" ZPD panel(GOYA2-PJT)
CHIMEI	V230W1-L02	BN07-00209A	CMZ		CMO 23" development
CHIMEI	V320B1-L01	BN07-00207A	CMZ		CMO 32" development
CHIMEI	V270W1-L01	BN07-00136A	CMZ		CHI MEI 27" panel development
NEC	SVA150XG04TB	BN07-00225A	BTZ		SVA NEC 15" panel ZPD code

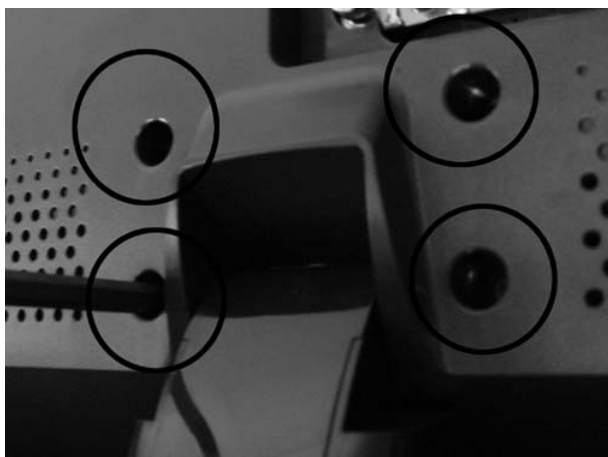
11 Disassembly and Reassembly

This section of the service manual describes the disassembly and reassembly procedures for the LW15M23CP/ LW17M24CP/LW20M21CP LCD TV.

⚠ **WARNING:** This monitor contains electrostatically sensitive devices. Use caution when handling these components.

11-1 LW15M23CP, LW15M25CP Disassembly

⚠ **Cautions:** **1. Disconnect the monitor from the power source before disassembly.**
2. Follow these directions carefully; never use metal instruments to pry apart the cabinet.

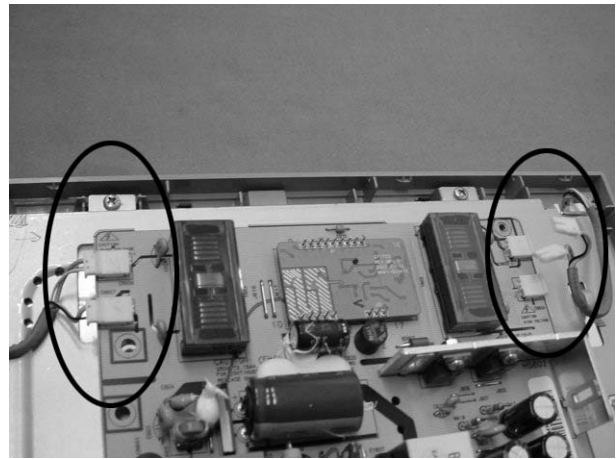
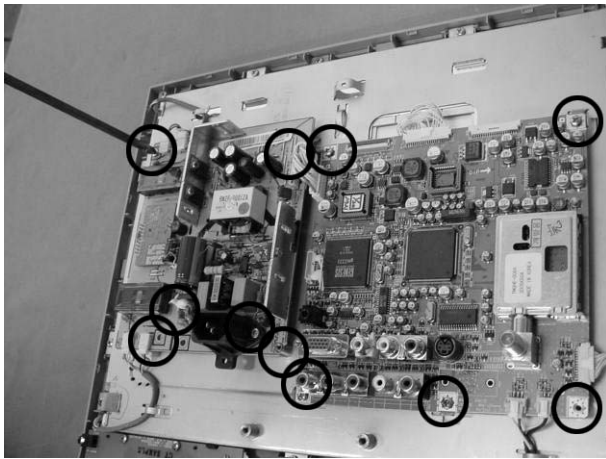


1. Place monitor face down on cushioned table. Remove 4 screws from grip on the stand and remove stand from the LCD TV

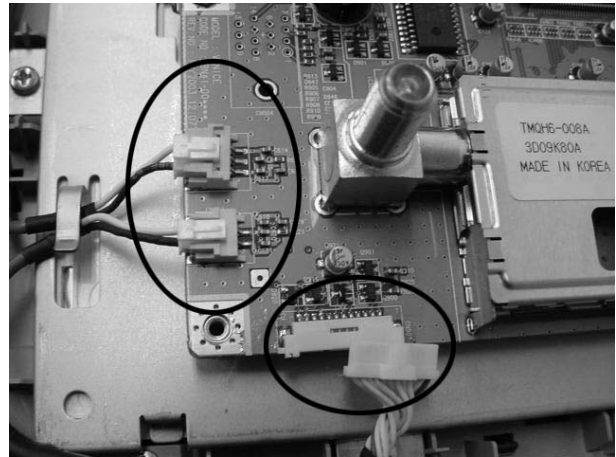
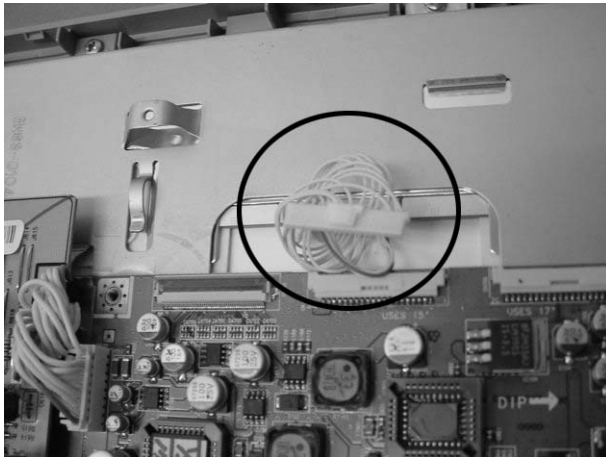


2. Remove 2 screws from the rear cover and lift up rear cover.

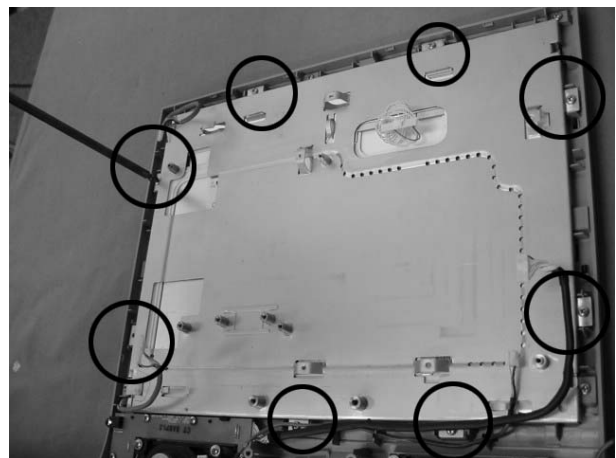
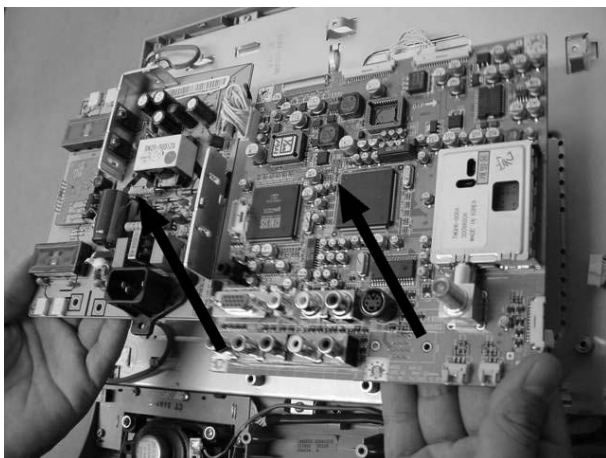
11 Disassembly and Reassembly



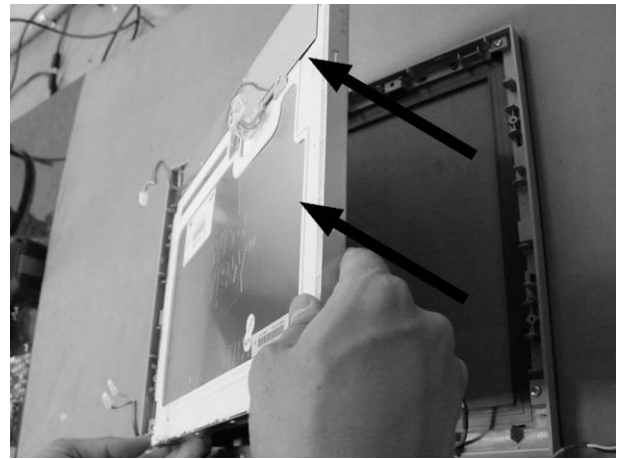
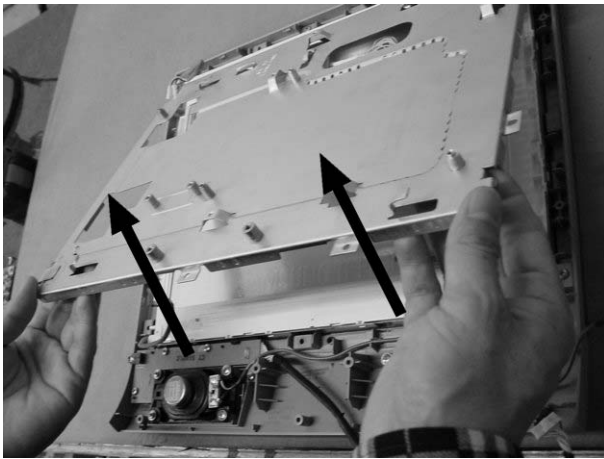
3. Remove 11 screws from the boards and disconnect inverter cables from the boards.



4. Disconnect LVDS cable, function cable and speaker cable from the board.

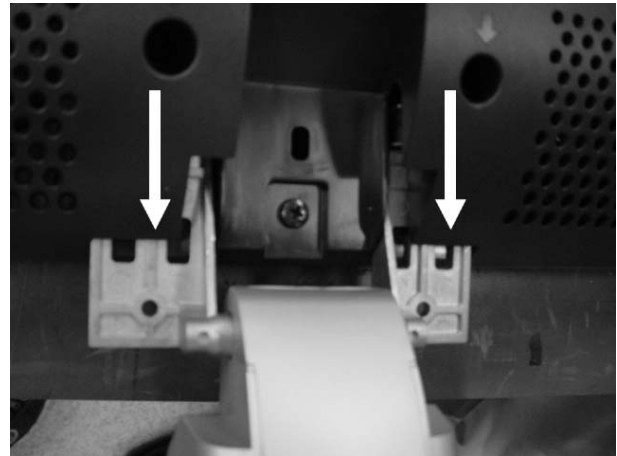
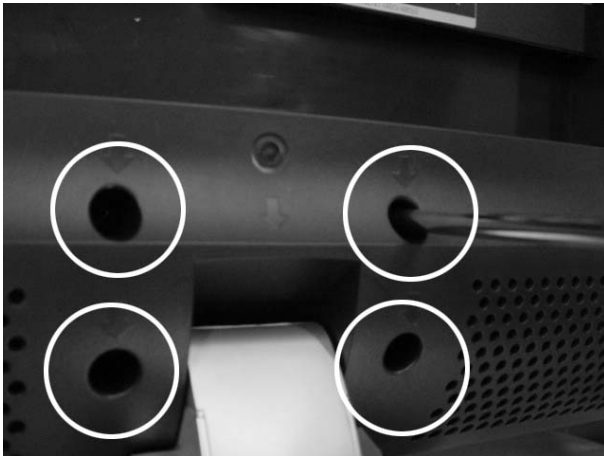


5. Lift up the boards and remove 8 screws from the panel shield.



6. Lift up the panel shield and disconnect panel from the front.

11-2 LW17M24CP Disassembly

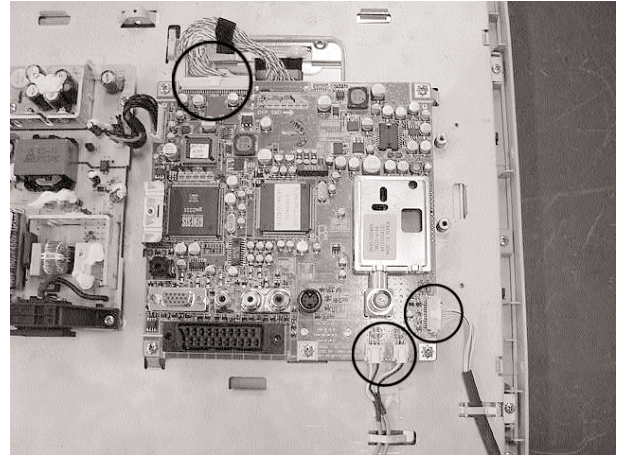
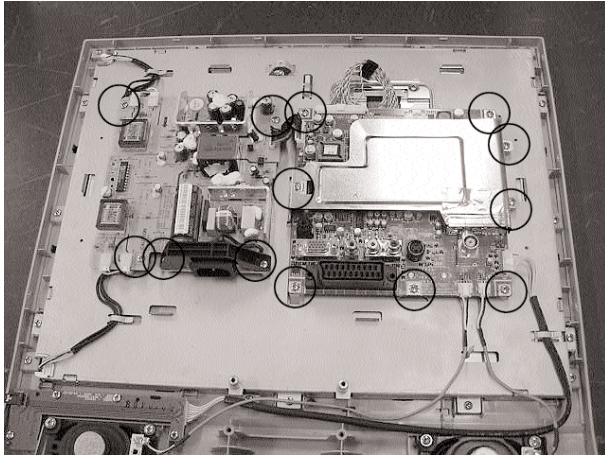


1. Place LCD TV face down on cushioned table. Remove 4 screws from the stand.

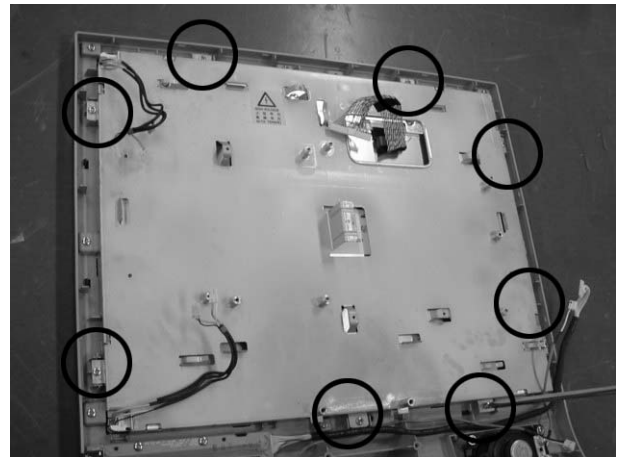
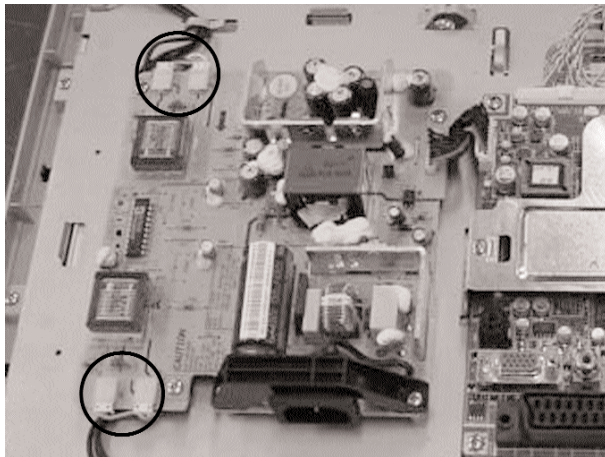


2. Remove 3 screws from the rear cover and lift up the rear cover.

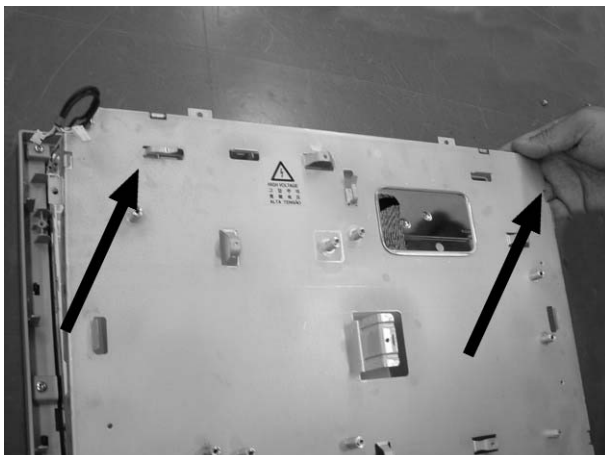
11 Disassembly and Reassembly



3. Remove 13 screws from the boards and remove 2 hold inverter from the boards.
Disconnect inverter cable, speaker cable, control cable, BRKT AC cable and LVDS cable from the boards.



4. Disconnect cables and Lift up the boards and remove 8 screws from the shield panel.

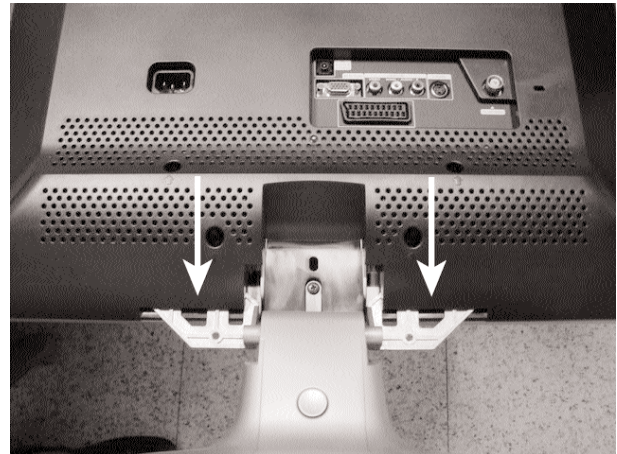


5. Lift up the panel shield and lift up the panel.



6. This picture shows cover front after disconnecting the panel from it.

11-3 LW20M21CP, LW20M25CP Disassembly

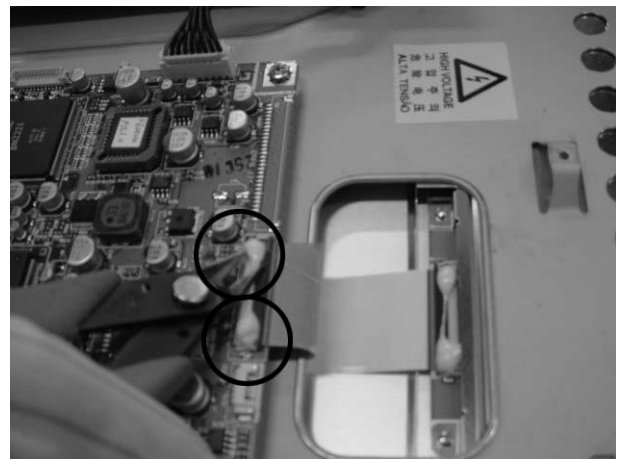
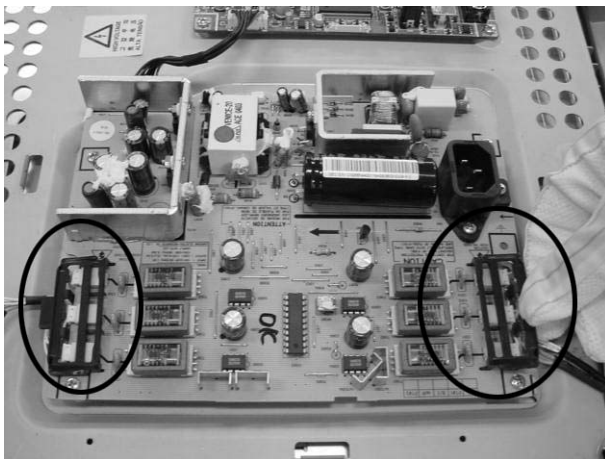


1. Place LCD TV face down on cushioned table. Remove 4 screws from the grip on the stand.

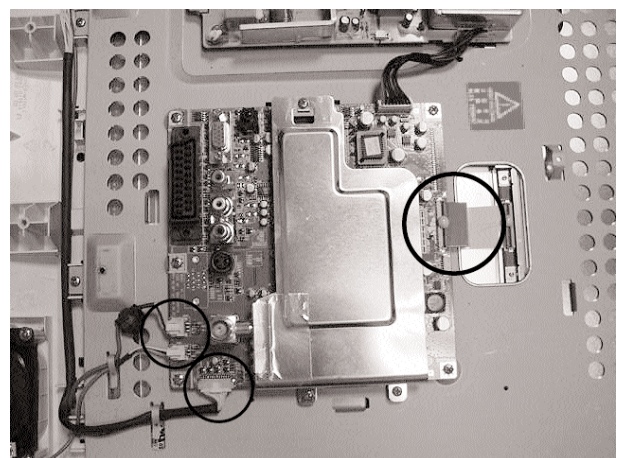
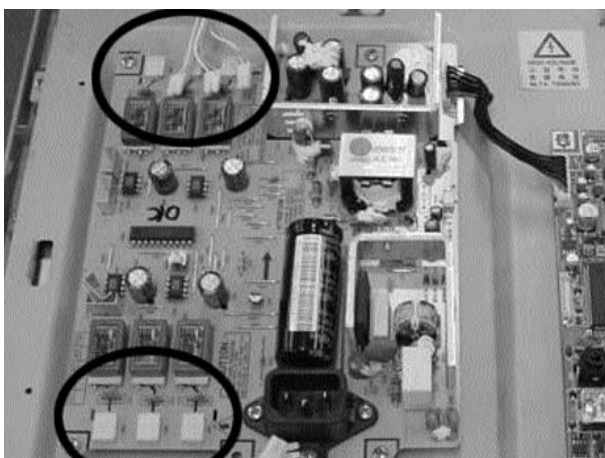
11 Disassembly and Reassembly



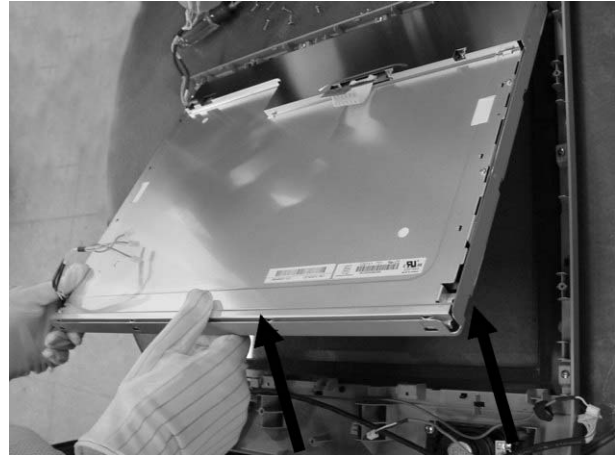
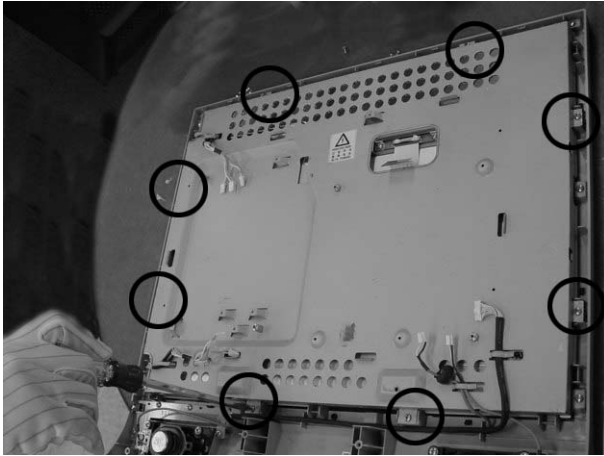
2. Remove 3 screws on stand and disconnect cover rear after inserting stand completely into stand.
(Note : If stand is loosely inserted into stand, cover rear can be damaged when disconnected.)



3. Disconnect inverter holder wire from the board and carefully remove the silicon glue on the LVDS cable with a nipper.



4. Disconnect function cable, speaker cable, inverter cable and LVDS cable from the board.

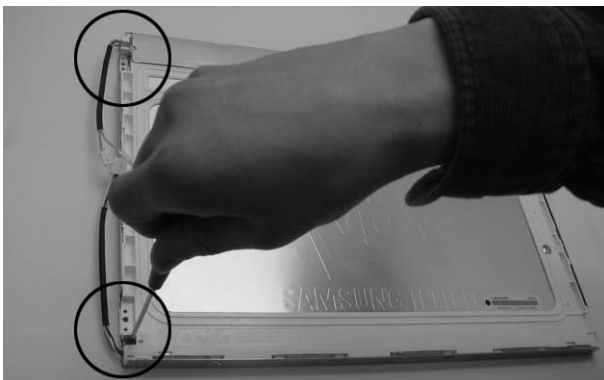


5. Remove 8 screws from the shield panel and lift up the panel.

11-4 Replacement Order of Lamp Assemblies



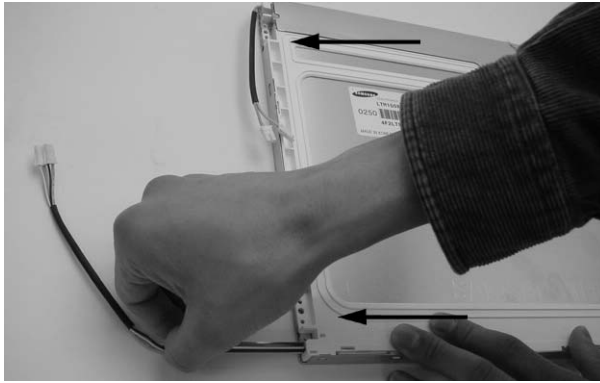
1. After confirm there is nothing on the desk, turn the LCD module over and put it on a flat desk set to the ground.



2. Remove 2 screws for the lamp unit.

11 Disassembly and Reassembly

← Slide the lamp unit out.



← Slide the lamp unit out.

3. Slide the lamp unit out. Please take out the lamp unit from the LCD module.



4. Please fix the new lamp units on the LCD module : opposite process 2 and 3.

11-5 Reassembly

Reassembly procedures are in the reverse order of disassembly procedures.

2 Product specifications

2-1 Fashion Feature

- Easy-to-use remote control
- Easy-to-use on-screen menu system
- Automatic timer to turn the TV on and off
- Adjustable picture and sound settings that can be stored in the TV's memory
- Automatic channel tuning for up to 194 channels. (Air : 69 , STD : 125)
- A special filter to reduce or eliminate reception problems
- Fine tuning control for the sharpest picture possible
- A built-in multi-channel sound decoder for stereo and bilingual listening
- Built-in, dual channel speakers
- Headphone jack for private listening

2 Product Specifications

2-2 LW15M23CP, LW15M25CP Specifications

Item	Description	
LCD Panel	TFT-LCD panel, RGB vertical stripe, normally white, 15-Inch viewable, 0.511 (H) x 0.511(V)mm pixel pitch	
Scanning Frequency	Horizontal : 30 ~ 69 kHz / Vertical : 50 ~ 75 Hz	
Display Colors	16.2 Million	
Maximum Resolution	Horizontal : 1024 Pixels Vertical : 768 Pixels	
Input Video Signal	Analog 0.7 Vp-p $\pm$ 5% positive at 75 Ω , internally terminated	
Input Sync Signal	Type : Seperate H/V Level : TTL level	
Maximum Pixel Clock rate	80 MHz	
Active Display Horizontal/Vertical	575.77 (H) / 323.71 (V) mm	
Power Supply	AC 100 ~260 V (50 / 60Hz)	
Power Consumption	40W / <3W	
Dimensions(W x D x H) Set	14.18 x 7.59 x 15.61 inch (360.2 x 192.9 x 396.5 mm) After installation Stand 14.18 x 2.53 x 13.33 inch (360.2 x 64.2 x 338.6 mm) Without stand	
Weight Set(After installation Stand)	3.6 kg (7.94 lbs)	
TV System	Tunning	Frequency Synthesize
	System	NTSC-M, PAL/ Secam_L/L' (Euro multi)
	Sound	MONO, STEREO, SAP, A2/Nicam
Environmental Considerations	Operating Temperature : 50°F ~ 104°F (10°C ~ 40°C) Operating Humidity : 10 % ~ 80 % Storage Temperature : -4°F ~ 113°F (-20°C ~ 45°C) Storage Humidity : 5 % ~ 95 %	
Antena Input	75 Ω	
Sound Characteristic	-MAX Internal speaker Out : Right : 2.5W / Left : 2.5W -BASS Control Range : -8 dB ~ + 8dB -TREBLE Control Range : -8 dB ~ +8 dB -Headphone Out : 10 mW MAX -Output Frequency : RF : 80 Hz ~ 15 kHz A/V : 80 Hz ~ 20 kHz	

2-2 LW17M24CP Specifications

Item	Description	
LCD Panel	TFT-LCD panel, RGB vertical stripe, normally white, 17-Inch viewable, 0.511 (H) x 0.511(V)mm pixel pitch	
Scanning Frequency	Horizontal : 30 ~ 80 kHz / Vertical : 50 ~ 75 Hz	
Display Colors	16.2 Million	
Maximum Resolution	Horizontal : 1280 Pixels Vertical : 1024 Pixels	
Input Video Signal	Analog 0.7 Vp-p $\pm$ 5% positive at 75 Ω , internally terminated	
Input Sync Signal	Type : Seperate H/V Level : TTL level	
Maximum Pixel Clock rate	80 MHz	
Active Display Horizontal/Vertical	575.77 (H) / 323.71 (V) mm	
Power Supply	AC 100 ~260 V (50 / 60Hz)	
Power Consumption	50W / <3W	
Dimensions(W x D x H) Set	16.40 x 7.59 x 16.68 inch (416.7 x 192.9 x 423.8 mm) After installation Stand 16.40 x 2.82 x 15.46 inch (416.7 x 71.8 x 392.9 mm) Without stand	
Weight Set(After installation Stand)	4.95 kg (10.91 lbs)	
TV System	Tunning	Frequency Synthesize
	System	NTSC-M, PAL/ Secam_L/L' (Euro multi)
	Sound	MONO, STEREO, SAP, A2/Nicam
Environmental Considerations	Operating Temperature : 50°F ~ 104°F (10°C ~ 40°C) Operating Humidity : 10 % ~ 80 % Storage Temperature : -4°F ~ 113°F (-20°C ~ 45°C) Storage Humidity : 5 % ~ 95 %	
Antena Input	75 Ω	
Sound Characteristic	-MAX Internal speaker Out : Right : 3W / Left : 3W -BASS Control Range : -8 dB ~ + 8dB -TREBLE Control Range : -8 dB ~ +8 dB -Headphone Out : 10 mW MAX -Output Frequency : RF : 80 Hz ~ 15 kHz A/V : 80 Hz ~ 20 kHz	

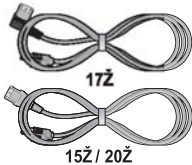
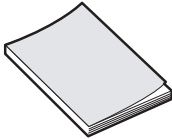
2-3 LW20M21CP, LW20M22CP, LW20M25CP Specifications

Item	Description	
LCD Panel	TFT-LCD panel, RGB vertical stripe, normally white, 20-Inch viewable, 0.511 (H) x 0.511(V)mm pixel pitch	
Scanning Frequency	Horizontal : 28 ~ 33 kHz / Vertical : 50 ~ 70Hz	
Display Colors	16.7 Million	
Maximum Resolution	Horizontal : 640 Pixels Vertical : 480 Pixels	
Input Video Signal	Analog 0.7 Vp-p $\pm$ 5% positive at 75 Ω , internally terminated	
Input Sync Signal	Type : Seperate H/V Level : TTL level	
Maximum Pixel Clock rate	80 MHz	
Active Display Horizontal/Vertical	575.77 (H) / 323.71 (V) mm	
Power Supply	AC 100 ~ 260 V (50 / 60Hz)	
Power Consumption	55W / <3W	
Dimensions(W x D x H) Set	18.86 x 2.94 x 17.18 inch (479.0 x 74.7 x 436.4 mm) After installation Stand 18.86 x 8.90 x 18.23 inch (479.0 x 226.0 x 463.0 mm) Without stand	
Weight Set(After installation Stand)	7.15 kg (15.76 lbs)	
TV System	Tunning	Frequency Synthesize
	System	NTSC-M, PAL/ Secam_L(Euro multi)
	Sound	MONO, STEREO, SAP, A2/Nicam
Environmental Considerations	Operating Temperature : 50°F ~ 104°F (10°C ~ 40°C) Operating Humidity : 10 % ~ 80 % Storage Temperature : -4°F ~ 113°F (-20°C ~ 45°C) Storage Humidity : 5 % ~ 95 %	
Antena Input	75 Ω	
Sound Characteristic	-MAX Internal speaker Out : Right : 2.5W / Left : 2.5W -BASS Control Range : -8 dB ~ + 8dB -TREBLE Control Range : -8 dB ~ +8 dB -Headphone Out : 10 mW MAX -Output Frequency : RF : 80 Hz ~ 15 kHz A/V : 80 Hz ~ 20 kHz	

2-4 Spec Comparison

Model	LW15M23C, LW17M24C, LW20M21C	LW15M23CP, LW17M24CP, LW20M21CP
Design		
Frequency Horizontal Vertical Display Color	LW15M23C : 30 ~ 69 kHz / LW17M24C : 30 ~ 80kHz / LW20M21C : 28 ~ 33kHz 50 ~ 75 Hz LW15M23C, LW17M24C: 16.2 Million / LW20M21C: 16.7 Million	LW15M23CP : 30 ~ 69 kHz / LW17M24CP : 30 ~ 80kHz / LW20M21CP : 28 ~ 33kHz 50 ~ 75 Hz LW15M23CP, LW17M24CP: 16.2 Million / LW20M21CP: 16.7 Million
PC Resolution Maximum mode	LW15M23C : 1024 x 768 @ 75 Hz LW17M24C : 1280 x 1024 @ 75 Hz LW20M21C : 800 x 600 @ 75 Hz	LW15M23CP : 1024 x 768 @ 75 Hz LW17M24CP : 1280 x 1024 @ 75 Hz LW20M21CP : 800 x 600 @ 75 Hz
Input Signal Sync Signal Video Signal	H/V Separate, TTL, P or N 0.7 Vp-p @ 75 Ω	H/V Separate, TTL, P. or N. 0.7 Vp-p @ 75 Ω
Power Consumption Normal Power Saving	LW15M23C : 40W, LW17M24C : 50W, LW20M21C : 55W <3W	LW15M23CP: 40W, LW17M24CP: 50W, LW20M21CP: 55W <3W

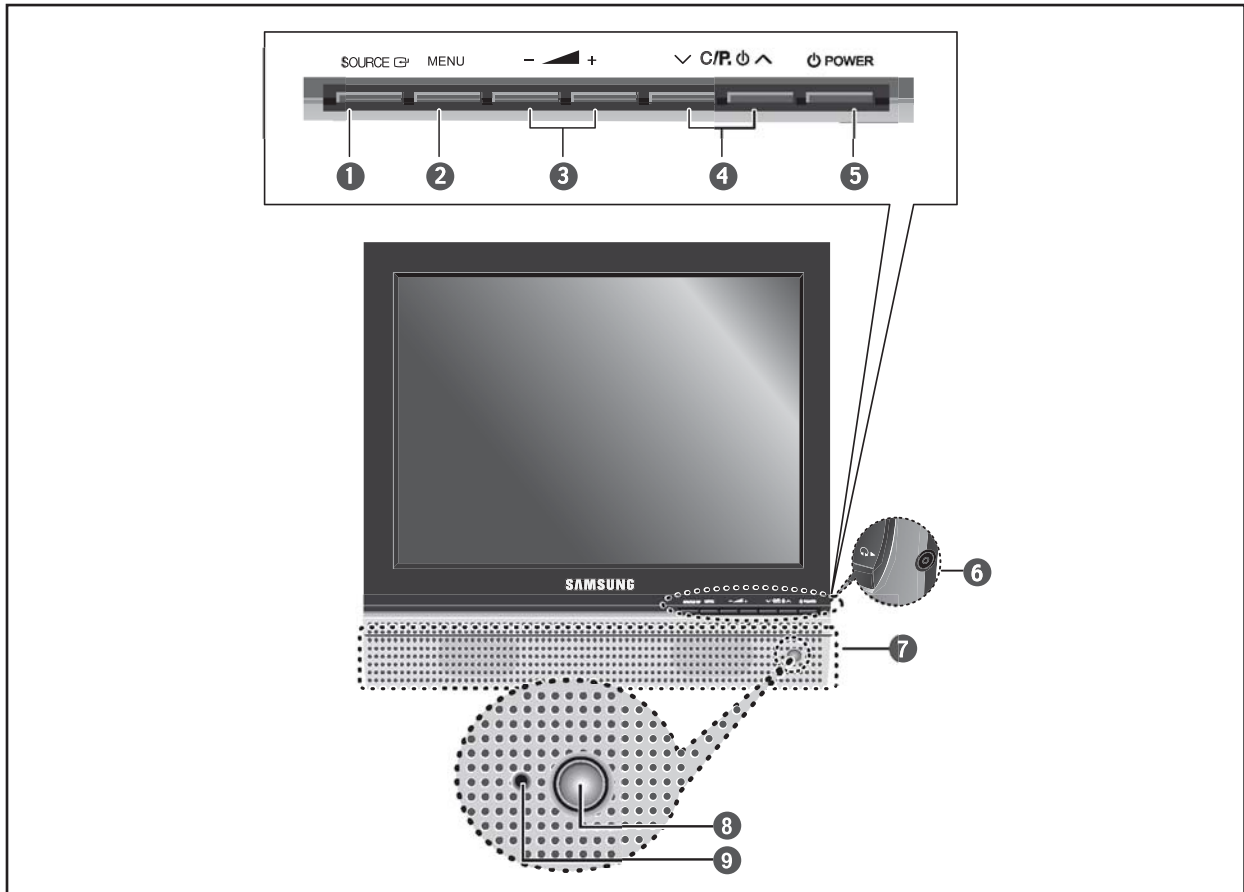
2-5 Option Specification

Item	Item Name	Code.No	Remark
	Remote Control / Batteries (AAA x 2)	BN59-00437A / 4301-000103	
	Power Cord	17": 3903-000144 15"/20": 3903-000085	
	Owner' s Instructions	BN68-00910A	
	Wall Mount kit(15"/17")	BN96-01270A	
	Wall Mount kit(20")	BN96-01271A	

10 Operating Installations and Installation

10-1 Product Features

10-1-1 Front



1. SOURCE

Displays a menu of all of the available input sources(TV - AV1 - AV2 - S-Video - PC).
You can also use the **SOURCE**()button on the TV's control panel to make selections.

2. MENU

Press to see an on-screen menu of your TV's features.

3. - +

Moves the selector left or right on the OSD.
Decreases or increases the level of audio volume and the values of the selected function.

4. C/P.

Moves the selector down or up on the OSD.
Decreases or increases the channel number.

5. POWER

Turns ON/OFF your set.

7. SPEAKERS

8. REMOTE CONTROL SENSOR

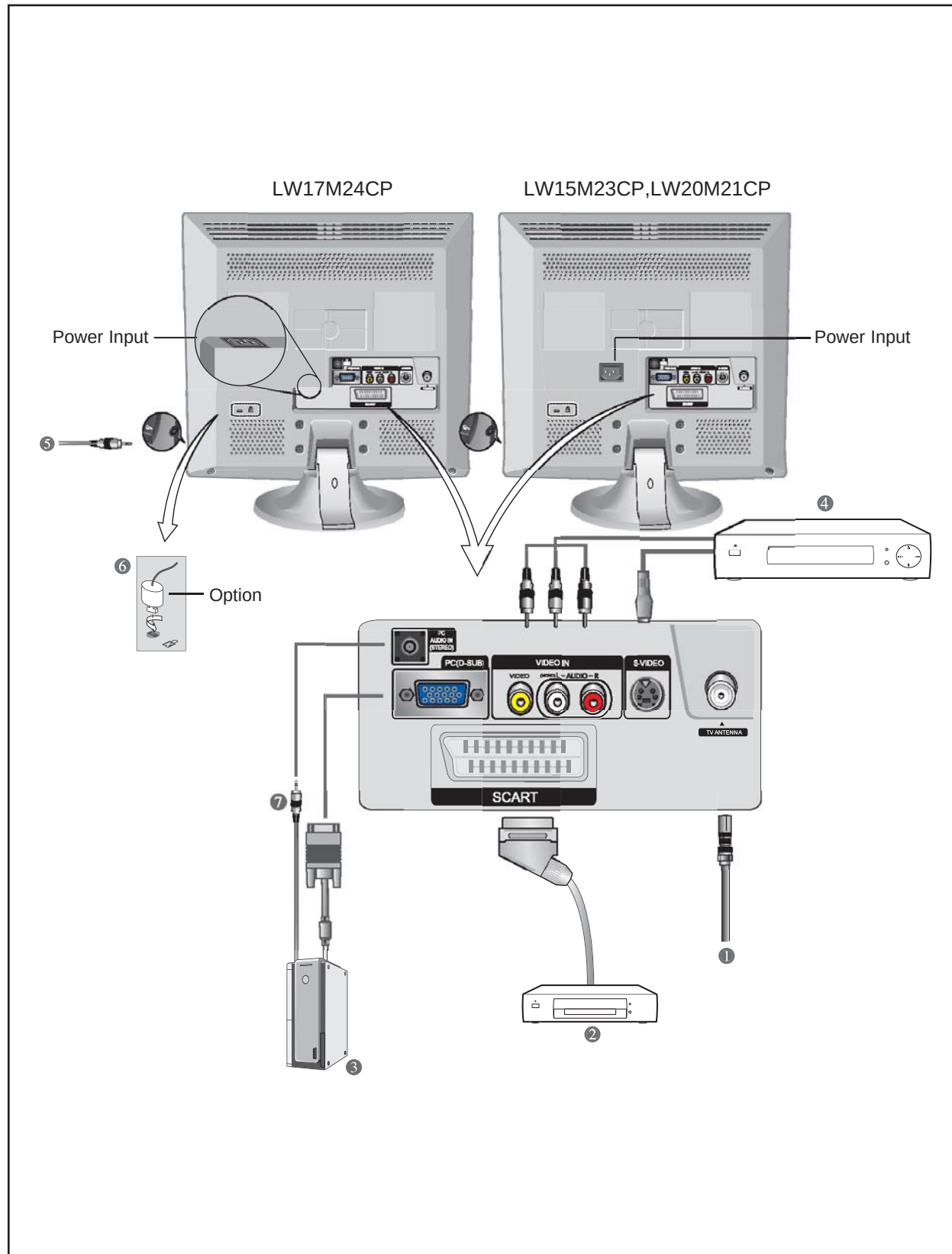
Aims the remote control towards this spot on the TV.

9. POWER INDICATOR

Lights up when you turn the power off.
(Red light shows in stand-by mode, Red shows when you turn the power on, and light is off after the power is on. Green shows when you set Timer on or off.)

6. HEADPHONE

10-1-2 Back



1. Connecting an Aerial or Cable Television Network (depending on the model)

To view television channels correctly, a signal must be received by the set from one of the following sources:

- An outdoor aerial
- A cable television network
- A satellite network

2. Connecting a Set-Top Box, VCR or DVD

- Connect the VCR, or DVD SCART cable to the SCART connector of the VCR, or DVD.
- If you wish to connect both the Set-Top Box and VCR (or DVD), you should connect the Set-Top Box to the VCR (or DVD) and connect the VCR (or DVD) to your set.

3. Connecting a Computer

- Connect the 15 Pin D-SUB connector to the PC video connector.
- Connect the stereo audio cable to the "PC AUDIO IN STEREO" jack (7) on the rear of your set and the other end to the "Audio Out" jack of the sound card on your computer.

4. Connecting External A/V Devices

- Connect RCA or S-VIDEO cables to an appropriate external A/V device such as a VCR, DVD or Camcorder.
- Connect RCA audio cables to "(MONO)L-AUDIO-R" on the rear of your set and the other ends to corresponding audio out connectors on the A/V device.

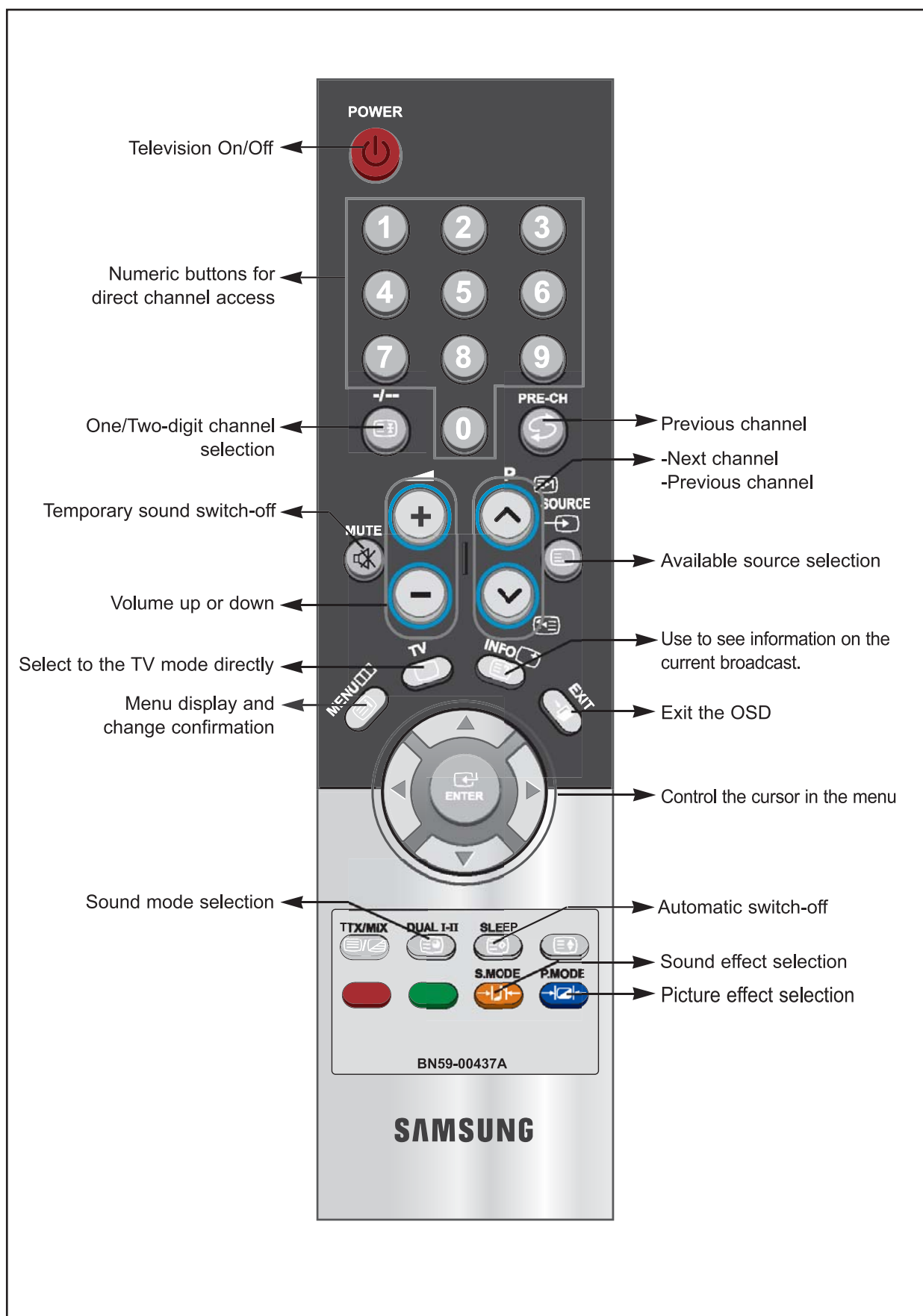
5. Connecting Headphones

- Plug a set of headphones into the 3.5mm mini-jack socket on the right-side of the set.
While the headphones are connected, the sound from the built-in speakers will be disabled.

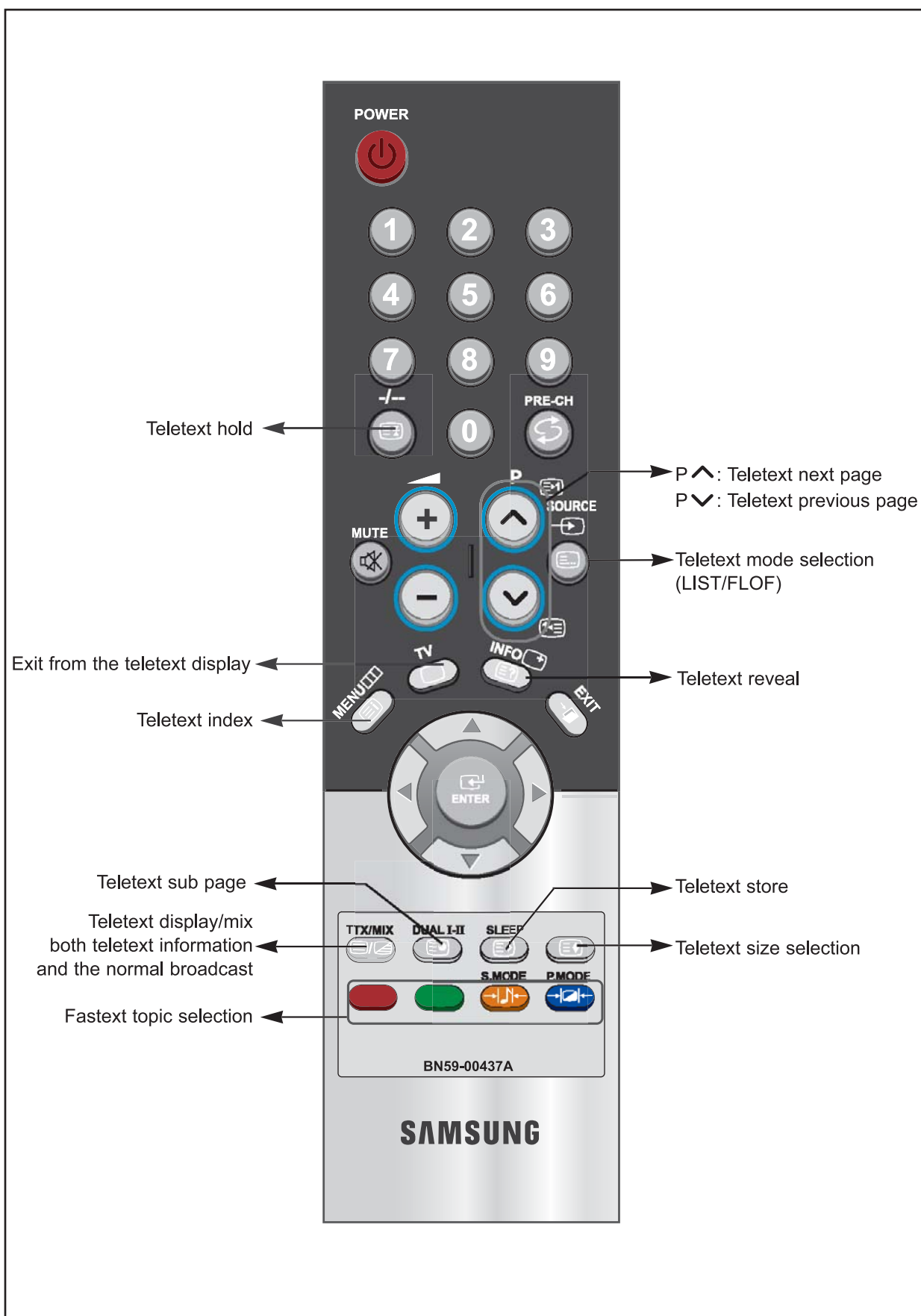
6. Kensington Slot

- This television has been designed to apply a burglarproof lock.

10-1-3 Remote Control



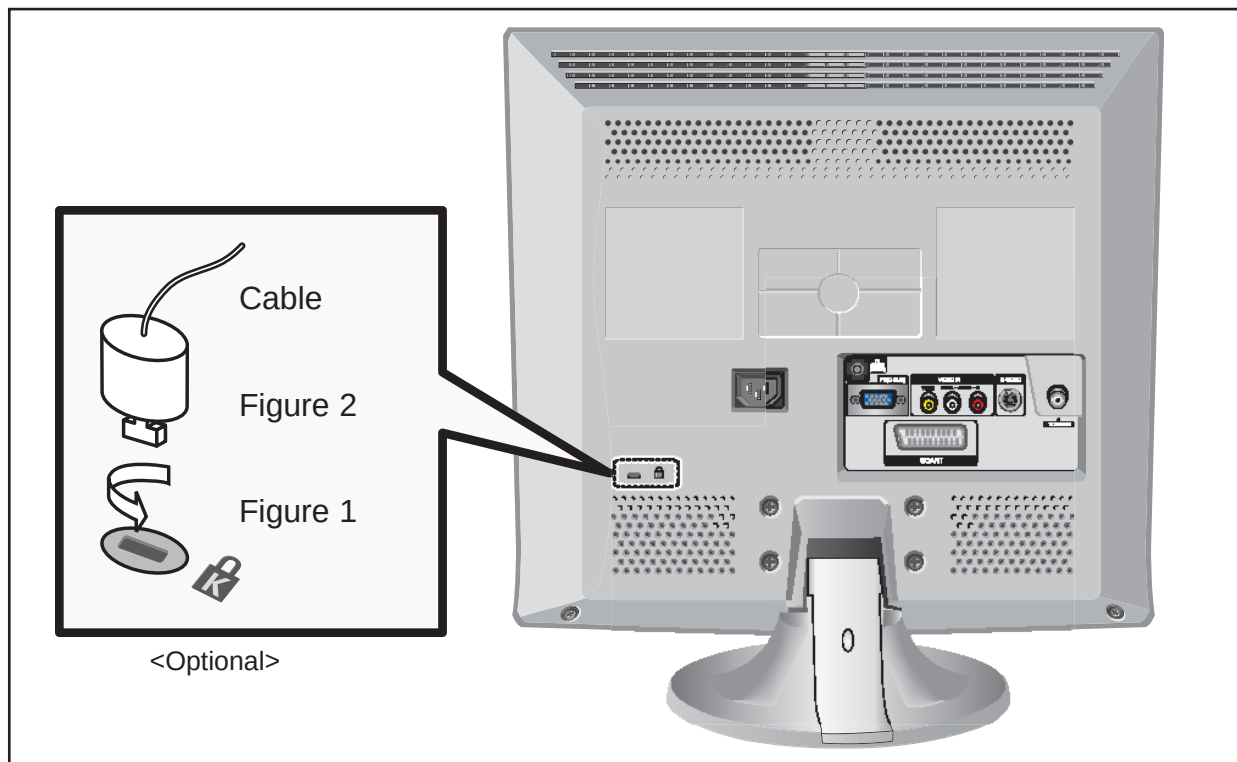
- The performance of the remote control may be affected by bright light.



- The performance of the remote control may be affected by bright light.

10-2 Installation Notes and Precautions

10-2-1 Using the Anti-Theft Kensington Lock



The Kensington lock is a device used to physically fix the system when using it in a public place. The locking device has to be purchased separately. The appearance and locking method may differ from the illustration depending on the manufacturer. Please refer to the manual provided with the Kensington lock for proper use.

1. Insert the locking device into the Kensington slot on the LCD TV (Figure 1), and turn it in the locking direction (Figure 2).
2. Connect the Kensington lock cable.
3. Fix the Kensington lock to a desk or a heavy stationary object.

10-2-2 Retractable Stand

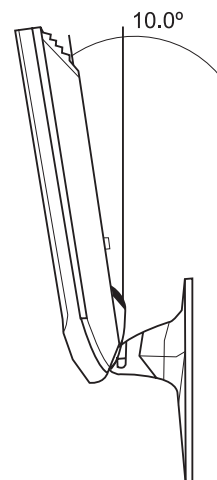
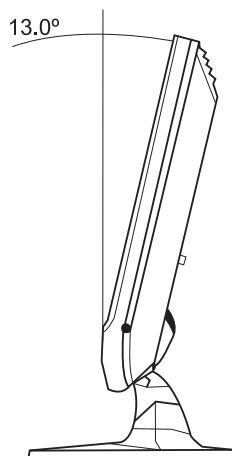
Note: The maximum tilt angle is 13 degrees in the backward direction. Please do not tilt the TV outside the specified range. Using excessive force to tilt the TV may cause permanent damage to the mechanical part of the stand. The 20" model swivels left and right.



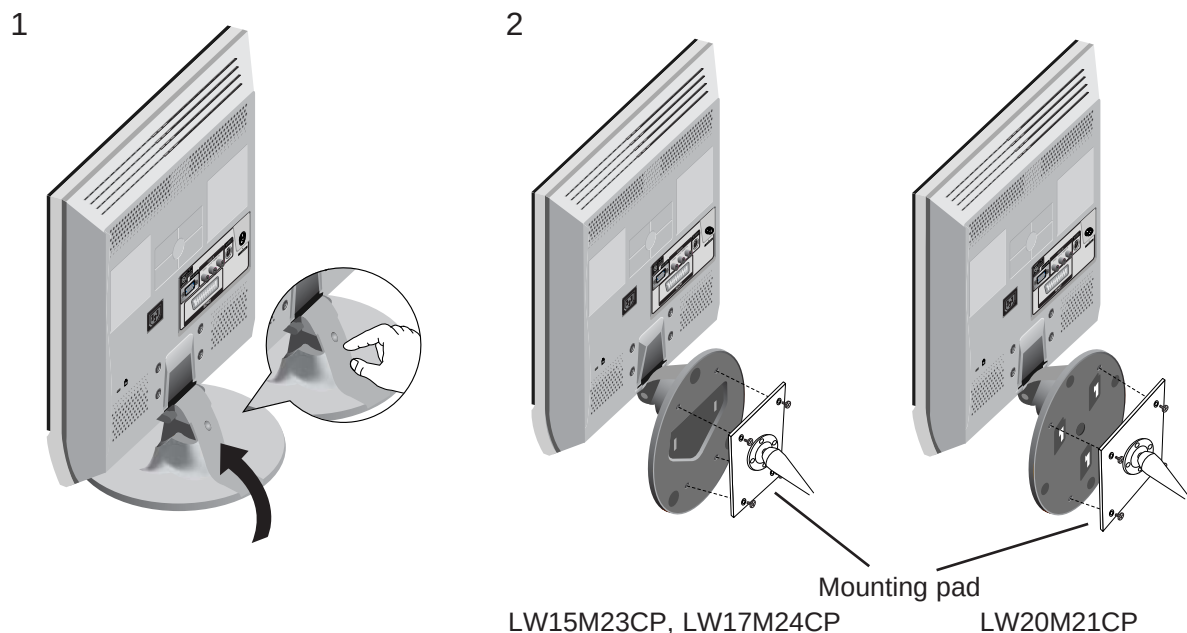
LT-P1545P,1745P



LT-P2045P



10-2-3 Installing VESA compliant mounting devices



- <1> Fold the stand pressing the button on the back of the stand.
- <2> Align the mounting interface pad with the holes in the stand bottom and secure it with the four screws that come with the arm-type base, wall mount hanger or other bases.

Wall Mount Instructions

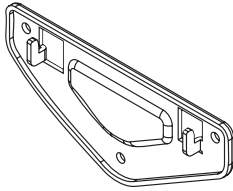
The following instructions apply to a hollow sheet-rock wall only. Tools/Hardware needed - Philips screwdriver, four toggle bolts, 5/8in dia. Drill bit and drill. Contact Ergotron at (800) 888-8458 to purchase the triple pivot direct mount adapter and wall mount bracket kit.

- LW15M23CP (15") : No. 47 - 007 - 099 (Pivot direct mount adapter)
No. 97 - 101 - 003 (Wall mount bracket kit)
- LW17M24CP (17") : No. 47 - 007 - 099 (Pivot direct mount adapter)
No. 97 - 101 - 003 (Wall mount bracket kit)
- LW20M21CP (20") : No. 47 - 007 - 099 (Pivot direct mount adapter)
No. 97 - 101 - 003 (Wall mount bracket kit)

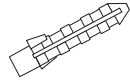
Align the wall mount bracket on the wall at the desired height, making sure that the bracket will be mounted between the wall studs. Mark the four corner openings and drill four 5/8-diameter holes. Assemble the wall mount kit according to the instructions provided with it. Securely attach Ergotron's flat panel, triple pivot direct mount adapter to the back of the TV using the four 4mm, 0.7 pitch x 10mm screws provided with the arm. Secure the assembly to the wall using four 3/16 by 3-inch long toggle bolts.

10-2-4 Installing the Wall Mount Kit(LW15M23CP, LW17M24CP)

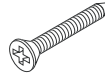
*Note : This installation is to be used when attaching the wall mount to a concrete wall.
When attaching to other building materials, please contact your nearest dealer.*



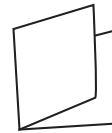
Bracket



Anchors : 3EA



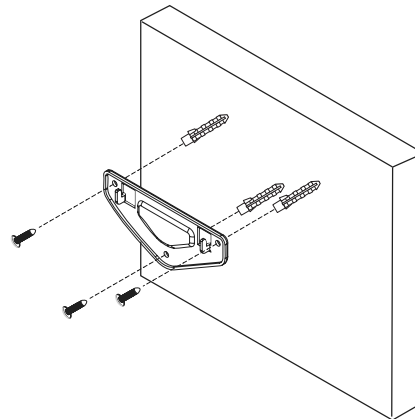
Anchors : 3EA



Installation Guide

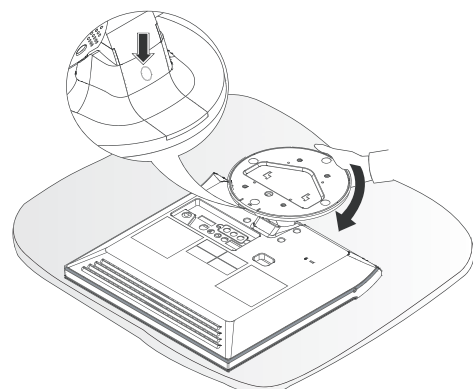
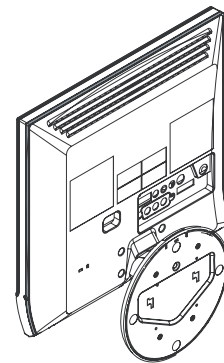
How to assemble the Wall Mount Kit

- 1** 1. Mark the location of hole on the wall using installation guide.
2. Make over 35mm- depth- hole on the marked location using 5.0-diameter drill.
3. Fix anchors on each hole on the wall.
4. Connect bracket to the wall with screws after fitting anchors into the bracket holes.

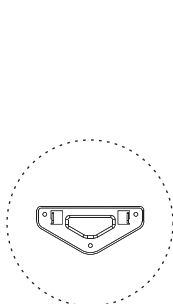


Note : If the bracket is not firmly fixed to the wall, LCD TV can fall off.

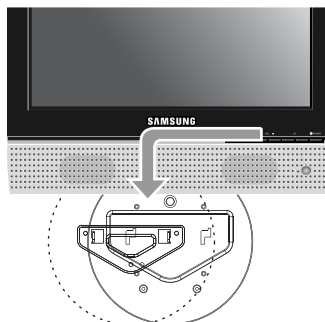
- 2** You may use LCD TV right after fixing it to the wall since stand is wrapped already turned over as shown in the picture below.
- 3** When using LCD TV in stand-based form, place the product on a cushion or other soft materials. Then turn over stand following the arrow direction below only after pressing button on the connected part where LCD TV is attached to stand.
(Turn over stand in the opposite direction after pressing button when using LCD TV in wall-mounted form as well.)



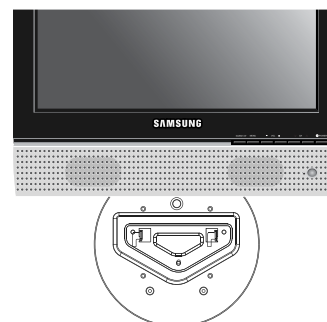
- 4 Adjust LCD TV to the hook on the bracket and move in the direction of the arrow(Left) so that LCD TV can be completely fixed to the bracket.



When bracket is assembled on the wall



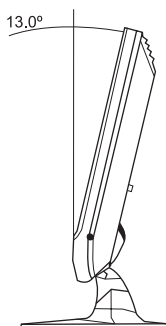
How to hang monitor up on a hook



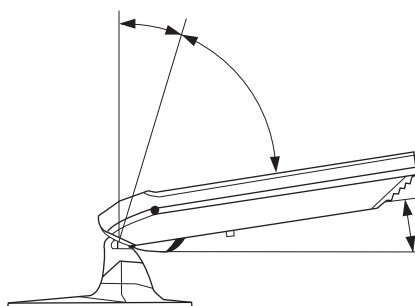
When installation is completed

- 5 Remove Installation Guide after completing setup of LCD TV on the wall.
- 6 Push the LCD TV up and shift to the right to detach it from bracket.
When moving or transferring to other areas, reverse No. 4 procedure so as to disconnect LCD TV with ease.

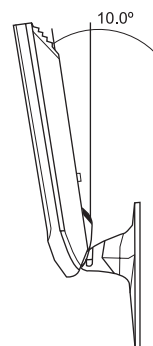
- How to adjust an angle



(1) Angle adjustment section of general stand-based LCD TV



(2) Angle adjustment section while converting the form (1->3, 3->1)



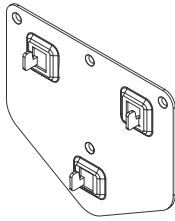
(3) Angle adjustment section of wall-mounted LCD TV

1. Picture (1) shows the adjustment angle ($0^{\circ} \sim 13^{\circ}$) when you use LCD TV in its general form (stand-based LCD TV).
2. Excessive tilting can turn LCD TV over which might cause damage to LCD TV.
Picture (2) shows the adjustment angle ($13^{\circ} \sim 80^{\circ}$) when you convert stand-based LCD TV into wall-mounted one.
3. Picture (3) shows the adjustment angle ($0^{\circ} \sim 10^{\circ}$) when you use wall-mounted LCD TV after fixing it to wall.

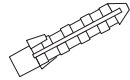
Note : Picture (2) shows the angle adjustment section while LCD TV is being converted from stand-based one to wall-mounted one or vice versa.

10-2-5 Installing the Wall Mount Kit(LW20M21CP)

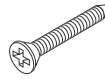
*Note : This installation is to be used when attaching the wall mount to a concrete wall.
When attaching to other building materials, please contact your nearest dealer.*



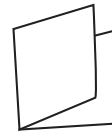
Bracket



Anchors : 4EA



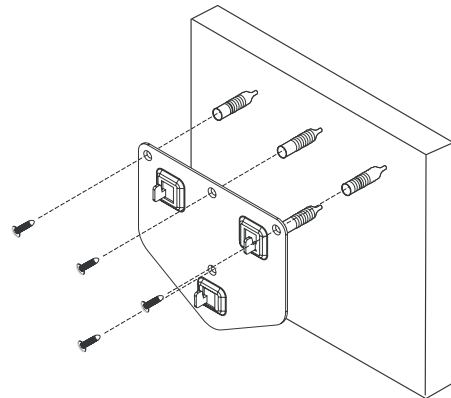
Anchors : 4EA



Installation Guide

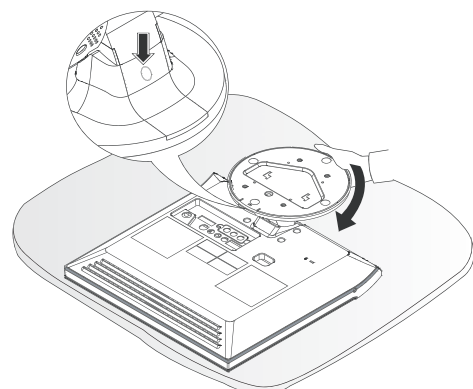
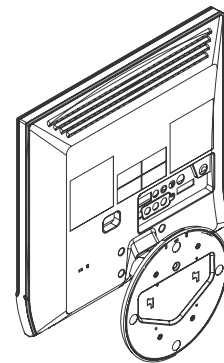
How to assemble the Wall Mount Kit

- 1** 1. Mark the location of hole on the wall using installation guide.
2. Make over 35mm- depth- hole on the marked location using 5.0-diameter drill.
3. Fix anchors on each hole on the wall.
4. Connect bracket to the wall with screws after fitting anchors into the bracket holes.

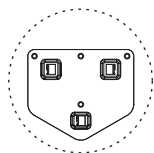


*Note : If the bracket is not firmly fixed to the wall,
LCD TV can fall off.*

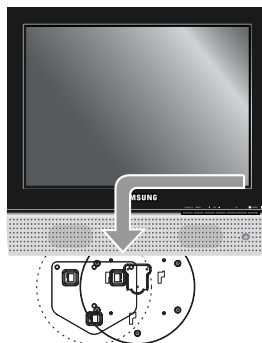
- 2** You may use LCD TV right after fixing it to the wall since stand is wrapped already turned over as shown in the picture below.
- 3** When using LCD TV in stand-based form, place the product on a cushion or other soft materials. Then turn over stand following the arrow direction below only after pressing button on the connected part where LCD TV is attached to stand.
(Turn over stand in the opposite direction after pressing button when using LCD TV in wall-mounted form as well.)



- 4 Adjust LCD TV to the hook on the bracket and move in the direction of the arrow(Left) so that LCD TV can be completely fixed to the bracket.



When bracket is assembled on the wall



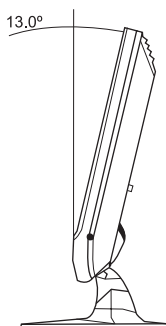
How to hang monitor up on a hook



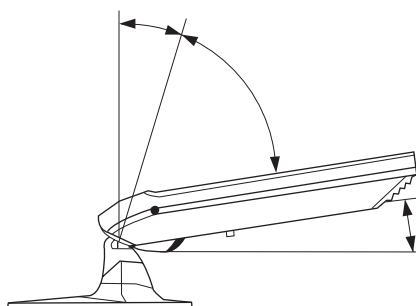
When installation is completed

- 5 Remove Installation Guide after completing setup of LCD TV on the wall.
- 6 Push the LCD TV up and shift to the right to detach it from bracket.
When moving or transferring to other areas, reverse No. 4 procedure so as to disconnect LCD TV with ease.

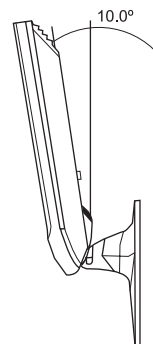
- How to adjust an angle



(1) Angle adjustment section of general stand-based LCD TV



(2) Angle adjustment section while converting the form
(1->3, 3->1)

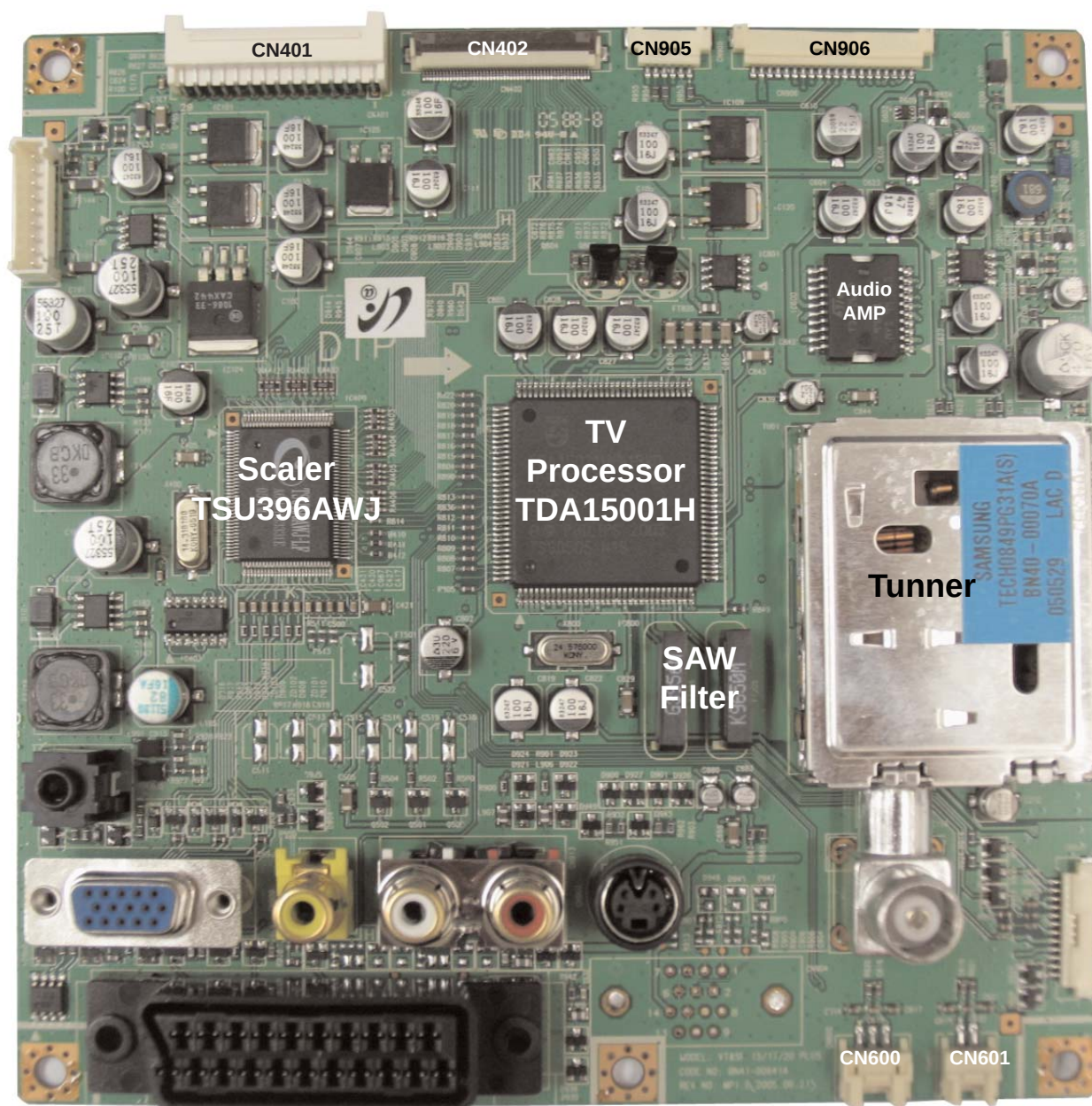


(3) Angle adjustment section of wall-mounted LCD TV

1. Picture (1) shows the adjustment angle ($0^{\circ} \sim 13^{\circ}$) when you use LCD TV in its general form (stand-based LCD TV).
2. Excessive tilting can turn LCD TV over which might cause damage to LCD TV.
Picture (2) shows the adjustment angle ($13^{\circ} \sim 80^{\circ}$) when you convert stand-based LCD TV into wall-mounted one.
3. Picture (3) shows the adjustment angle ($0^{\circ} \sim 10^{\circ}$) when you use wall-mounted LCD TV after fixing it to wall.

Note : Picture (2) shows the angle adjustment section while LCD TV is being converted from stand-based one to wall-mounted one or vice versa.

8 Wiring Diagram



CN100(9P) : To IP Board
 CN401(30P) : To 15",17" Panel
 CN402(50P) : To 20" Panel
 CN905(5P) : To Program Download Jig
 CN906(20P) : To Scart
 CN600(3P) : To Left Speaker
 CN601(2P) : To Right Speaker
 CN907(12P) : To Function Board

Memo

6 Electrical Parts List

-You can search for updated part codes through ITSELF web site.

URL : <http://itself.sec.samsung.co.kr/>

6-1 LW20M22CPX/XEC Parts list

Level	Loc. No.	Code No.	Description & Specification	EA	SA/SNA
0		LW20M22CPX/XEC	LW20M22CP,Q10F/20A81-GPL,20,LCD-TV,SPAIN		
0.1	M0216	BN90-00400B	ASSY STAND;VE20UO	1	S.N.A
..2	M0003	BN96-01160A	ASSY STAND P;VE20UO,ABS,HB,GR70,SV012P	1	S.A
...3	M0081	6003-000122	SCREW-TAPTITE;BH,+,B,M4,L12,ZPC(YEL),SWR	4	S.N.A
...3	M0081	6003-001024	SCREW-TAPTITE;RWH,+,B,M4,L12,ZPC(YEL),SW	1	S.N.A
...3	M0003	BN61-00816A	STAND-COVER;LT20M2,ABS HB,GR70,SV012P,NA	1	S.N.A
...3	STD	BN61-00817A	STAND-SUB COVER;LT20M2,ABS HB,GR70,SV012	1	S.N.A
...3	STD	BN61-00818A	STAND-BRKT BOTTOM;LT20M2,SECC,T1.0,NAT	1	S.N.A
...3	STD	BN61-01171A	STAND-SWIVEL BASE;VE20,ABS,HB,T2.5,GR70	1	S.N.A
...3	M0122	BN96-01161A	ASSY MISC P-HINGE;VE20UO,DIE CASTING T2.	1	S.N.A
...3	STD	BN64-00303A	KNOB-LOCK;VE20,ABS,HB,GR70,SV012P	1	S.N.A
...3	M0140	BN63-01474A	FELT-STAND;VENICE 20",FELT,T1.0,10,15	4	S.N.A
...3	T0069	AA63-00099C	SPACER-FELT;47W3,FELT,BLK,T0.35,30*30	1	S.N.A
...3	M0081	6003-001185	SCREW-TAPTITE;FH,+,B,M3,L8,NI PLT,SWRCH1	8	S.N.A
...3	M0126	BN73-00077A	RUBBER-FOOT;MATISSE,BUMPON,"*13.5,T2.0,6	4	S.N.A
0.1	M0002	BN90-00806B	ASSY COVER REAR;PLUS,20EO,ABS,V0,BK19(K2	1	S.N.A
..2	T0081	6002-001294	SCREW-TAPPING;BH,+,M4,L16,ZPC(BLK)	4	S.A
..2	M0013	BN96-01159N	ASSY COVER P-REAR;PLUS,20EO,ABS,V0,BK19(	1	S.A
...3	T0069	AA60-00091B	SPACER-FELT;-,FELT,100X10,-,BLK,T0.35,	5	S.N.A
...3		BN63-01178P	COVER-INLAY;PLUS,EO,PC SHEET,T0.5	1	S.N.A
...3	M0006	BN63-01191A	COVER-REAR;LT20M2,ABS,V0,BK19	1	S.N.A
...3	C/R	BN63-01474F	FELT;VENICE 20",FELT,T0.35,10,50	1	S.N.A
0.1	M0001	BN90-00808G	ASSY COVER FRONT;PLUS,20EO,SILVER,(CMO,B	1	S.N.A
..2	M0081	6003-001003	SCREW-TAPTITE;BH,+,B,M4,L12,ZPC(BLK),SWR	3	S.N.A
..2	T0003	BN96-01158Z	ASSY COVER P-FRONT;PLUS,20EO,ABS,V0,GR70	1	S.N.A
...3	M0081	6003-000010	SCREW-TAPTITE;BWH,+,B,M3,L10,ZPC(YEL),SW	8	S.A
...3	M0081	6003-000276	SCREW-TAPTITE;BH,+,B,M3,L10,ZPC(YEL),SWC	13	S.N.A
...3	T0069	AA60-00091E	SPACER-FELT;-,FELT,100X10,-,BLK,T0.5,-	1	S.N.A
...3	T0069	AA60-00091S	SPACER-FELT;61L2,FELT,30*10,BLK,T0.5	1	S.N.A
...3	T0114	BN61-01282A	HOLDER-CAP;VE20,ABS V0,2.5	4	S.N.A
...3	M0112	BN63-01181A	COVER-FRONT;LT20M2,ABS,V0,GR70,SV-012P	1	S.N.A
...3	C/F	BN63-01182F	COVER-FRONT BEZEL;VC20,ABS,V0,GR70,SV-01	1	S.N.A
...3	C/F	BN63-01474D	FELT;VENICE 20",FELT,T0.35,20,350	2	S.N.A
...3	C/F	BN63-01474E	FELT;VENICE 20",FELT,T0.35,20,400	2	S.N.A
...3	T0057	BN64-00207A	BADGE-BRAND;POSEIDON,AL,T1.5,8.5,50,BLK,	1	S.N.A
...3	C/F	BN64-00254B	KNOB-FUNCTION;VC20,ABS,V0,GR70,SV-012P	1	S.N.A
...3	T0014	BN67-00119A	LENS-IR;LT20M2,ACRYL,CLEAR	1	S.N.A
...3	T0175	BN96-00496A	ASSY SPEAKER P;16ohm,Ares 15",Right,3W,5	1	S.A
...3	T0175	BN96-01164A	ASSY SPEAKER P;16ohm,Venice,Left,3W,150m	1	S.A
...3	M0145	BN96-02632A	ASSY BOARD P-FUNCTION;PLUS 20INCH,CT5000	1	S.A
0.1	M0112	BN91-00845N	ASSY SHIELD;LW20M21CPX/XEC,PL20KE,BOE PA	1	S.N.A
..2	M0081	6003-000117	SCREW-TAPTITE;BH,+,B,M3,L6,ZPC(YEL),SWRC	3	S.A
..2	M0081	6003-000259	SCREW-TAPTITE;BH,+,B,M3,L8,ZPC(YEL),SWRC	4	S.N.A
..2	M0081	6003-000259	SCREW-TAPTITE;BH,+,B,M3,L8,ZPC(YEL),SWRC	5	S.N.A
..2	M0081	6003-001023	SCREW-TAPTITE;PWH,+,B,M3,L10,ZPC(YEL),SW	2	S.N.A
..2	M0081	6003-001086	SCREW-TAPTITE;BH,+,B,M3,L12,ZPC(BLK),SWR	8	S.A
..2	M2893	BN39-00609A	LEAD CONNECTOR;VE20EO,UL1015#22 BLACK,1P	1	S.A
..2	CIS	BN41-00673A	FPC;PLUS20_CMO,POLYIMIDE,50P,0.5mm	1	S.N.A
..2	M0174	BN44-00115B	IP BOARD;IP-51135T(A),VENICE 20",4.0MA,6	1	S.A
..2	CIS	BN61-01323A	HOLDER-INVERTER WIRE;VE20,ABS V0,T2.0	2	S.N.A
..2	CIS	BN96-01344A	ASSY MISC P-BRKT PANEL;VENICE 20"	1	S.N.A
...3	M0125	BN63-01130A	SHIELD-PANEL;LT20M2,SECC,T0.8	1	S.N.A
...3	M0162	6502-001067	CABLE CLAMP;DAFC-1300,ID2.2,T5.2,NYLIN6/	1	S.N.A
..2	CIS	BN96-01395A	ASSY MISC P-SHIELD TUNER;VE15EO,SPTT T0.	1	S.N.A
...3	CIS	BN63-01463A	SHIELD-TUNER;VE15,SPTT,T0.5,PAL	1	S.N.A
...3	M0104	BN63-01472A	EARTH-PLATE;VE15EO,BeCU,0.13	1	S.N.A
0.1	M0019	BN91-00869J	ASSY LCD;DTZ,PL20KE,BOE	1	S.N.A
..2	M0215	BN07-00263A	LCD-PANEL;HT201V01-100,8bit,448.6*339.6"	1	S.A
0.1	M0017	BN91-00940G	ASSY CHASSIS;LW20M21CPX/XEC,PL20KE,VENIC	1	S.A

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Level	Loc. No.	Code No.	Description & Specification	Q'ty	SA/SNA
..2	M0014	BN94-00747G	ASSY PCB MAIN;LW20M21CPX/XEC,PL20KU,VENI	1	S.A
...3	T0245	0202-001366	SOLDER-WIRE FLUX;-RS60S,D1.2,63Sn/37Pb,	0.03	S.N.A
...3	Q802	0501-000321	TR-SMALL SIGNAL;KSB1116-Y,PNP,750mW,TO-9	1	S.A
...3	Q804	0501-000321	TR-SMALL SIGNAL;KSB1116-Y,PNP,750mW,TO-9	1	S.A
...3	FT206	2904-000302	FILTER-SAW AV;38.9MHz,SIP5K,ST,15.4dB,B/	1	S.A
...3	FT205	2904-001203	FILTER-SAW AV;38.9MHz,SIP5K,ST,16.9dB,B/	1	S.A
...3	CN908	3701-001294	CONNECTOR-DSUB;15P,3R,FEMALE,STRAIGHT,AU	1	S.A
...3	CN906	3705-001331	CONNECTOR-COAXIAL;PAL,ADAPTOR(J/J),-,75o	1	S.A
...3	CN100	3711-004712	HEADER-BOARD TO CABLE;BOX,9P,1R,2mm,STRA	1	S.A
...3	CN900	3722-000158	JACK-PIN;1P,3.4mm,SN,YEL,-	1	S.A
...3	CN902	3722-000498	JACK-SCART;21P,-,SN,BLK,NO	1	S.A
...3	CN909	3722-001061	JACK-PHONE;1P,3.6PI,AG,BLK,N	1	S.A
...3	CN903	3722-001734	JACK-VHS;4P,-,SN,BLK,-	1	S.A
...3	CN913	3722-001846	JACK-PIN;2P,8.3MM,AU,WHT/RED,-	1	S.A
...3	T0174	BN97-00647G	ASSY SMD;LW20M21CPX/XEC,PL20KE,VENICE	1	S.N.A
...4	CIS5	0202-001375	SOLDER-CREAM;RMA-20-21L,S63,-,Sn63/Pb36.	3.82	S.N.A
...4	D202	0401-000133	DIODE-SWITCHING;RLS4148,75V,150mA,LL-34,	1	S.A
...4	D200	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200MA,SO	1	S.A
...4	D600	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200MA,SO	1	S.A
...4	D908	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200MA,SO	1	S.A
...4	D909	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200MA,SO	1	S.A
...4	D910	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200MA,SO	1	S.A
...4	D929	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200MA,SO	1	S.A
...4	D948	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200MA,SO	1	S.A
...4	D949	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200MA,SO	1	S.A
...4	D203	0401-001099	DIODE-SWITCHING;1N4148WS,75V,150mA,SOD-3	1	S.A
...4	D101	0402-000553	DIODE-RECTIFIER;SS24,40V,2.0A,DO-214AA	1	S.A
...4	D102	0402-000553	DIODE-RECTIFIER;SS24,40V,2.0A,DO-214AA	1	S.A
...4	D912	0403-000258	DIODE-ZENER;BZX84C5V6,5.2-6V,225MW,SOT-2	1	S.A
...4	D913	0403-000258	DIODE-ZENER;BZX84C5V6,5.2-6V,225MW,SOT-2	1	S.A
...4	D914	0403-000258	DIODE-ZENER;BZX84C5V6,5.2-6V,225MW,SOT-2	1	S.A
...4	D915	0403-000258	DIODE-ZENER;BZX84C5V6,5.2-6V,225MW,SOT-2	1	S.A
...4	D916	0403-000258	DIODE-ZENER;BZX84C5V6,5.2-6V,225MW,SOT-2	1	S.A
...4	D904	0403-000579	DIODE-ZENER;BZX84C5V1,4.8-5.4V,200MW,SOT	1	S.A
...4	D918	0403-000579	DIODE-ZENER;BZX84C5V1,4.8-5.4V,200MW,SOT	1	S.A
...4	D920	0403-000579	DIODE-ZENER;BZX84C5V1,4.8-5.4V,200MW,SOT	1	S.A
...4	D928	0403-000579	DIODE-ZENER;BZX84C5V1,4.8-5.4V,200MW,SOT	1	S.A
...4	D944	0403-001048	DIODE-ZENER;BZX84C16,15.3-17.1V,225mW,SO	1	S.A
...4	D603	0403-001052	DIODE-ZENER;RD8.2MB,7.7-8.7V,200MW,SOT-2	1	S.A
...4	D604	0403-001052	DIODE-ZENER;RD8.2MB,7.7-8.7V,200MW,SOT-2	1	S.A
...4	D605	0403-001052	DIODE-ZENER;RD8.2MB,7.7-8.7V,200MW,SOT-2	1	S.A
...4	D606	0403-001052	DIODE-ZENER;RD8.2MB,7.7-8.7V,200MW,SOT-2	1	S.A
...4	D900	0403-001052	DIODE-ZENER;RD8.2MB,7.7-8.7V,200MW,SOT-2	1	S.A
...4	D901	0403-001052	DIODE-ZENER;RD8.2MB,7.7-8.7V,200MW,SOT-2	1	S.A
...4	D902	0403-001052	DIODE-ZENER;RD8.2MB,7.7-8.7V,200MW,SOT-2	1	S.A
...4	D903	0403-001052	DIODE-ZENER;RD8.2MB,7.7-8.7V,200MW,SOT-2	1	S.A
...4	D905	0403-001052	DIODE-ZENER;RD8.2MB,7.7-8.7V,200MW,SOT-2	1	S.A
...4	D906	0403-001052	DIODE-ZENER;RD8.2MB,7.7-8.7V,200MW,SOT-2	1	S.A
...4	D921	0403-001052	DIODE-ZENER;RD8.2MB,7.7-8.7V,200MW,SOT-2	1	S.A
...4	D922	0403-001052	DIODE-ZENER;RD8.2MB,7.7-8.7V,200MW,SOT-2	1	S.A
...4	D923	0403-001052	DIODE-ZENER;RD8.2MB,7.7-8.7V,200MW,SOT-2	1	S.A
...4	D924	0403-001052	DIODE-ZENER;RD8.2MB,7.7-8.7V,200MW,SOT-2	1	S.A
...4	D925	0403-001052	DIODE-ZENER;RD8.2MB,7.7-8.7V,200MW,SOT-2	1	S.A
...4	D926	0403-001052	DIODE-ZENER;RD8.2MB,7.7-8.7V,200MW,SOT-2	1	S.A
...4	D927	0403-001052	DIODE-ZENER;RD8.2MB,7.7-8.7V,200MW,SOT-2	1	S.A
...4	D930	0403-001052	DIODE-ZENER;RD8.2MB,7.7-8.7V,200MW,SOT-2	1	S.A
...4	D932	0403-001052	DIODE-ZENER;RD8.2MB,7.7-8.7V,200MW,SOT-2	1	S.A
...4	D934	0403-001052	DIODE-ZENER;RD8.2MB,7.7-8.7V,200MW,SOT-2	1	S.A
...4	D935	0403-001052	DIODE-ZENER;RD8.2MB,7.7-8.7V,200MW,SOT-2	1	S.A
...4	D936	0403-001052	DIODE-ZENER;RD8.2MB,7.7-8.7V,200MW,SOT-2	1	S.A
...4	D937	0403-001052	DIODE-ZENER;RD8.2MB,7.7-8.7V,200MW,SOT-2	1	S.A
...4	D938	0403-001052	DIODE-ZENER;RD8.2MB,7.7-8.7V,200MW,SOT-2	1	S.A
...4	D939	0403-001052	DIODE-ZENER;RD8.2MB,7.7-8.7V,200MW,SOT-2	1	S.A
...4	D940	0403-001052	DIODE-ZENER;RD8.2MB,7.7-8.7V,200MW,SOT-2	1	S.A
...4	D941	0403-001052	DIODE-ZENER;RD8.2MB,7.7-8.7V,200MW,SOT-2	1	S.A
...4	D942	0403-001052	DIODE-ZENER;RD8.2MB,7.7-8.7V,200MW,SOT-2	1	S.A
...4	D945	0403-001052	DIODE-ZENER;RD8.2MB,7.7-8.7V,200MW,SOT-2	1	S.A
...4	D946	0403-001052	DIODE-ZENER;RD8.2MB,7.7-8.7V,200MW,SOT-2	1	S.A
...4	D947	0403-001052	DIODE-ZENER;RD8.2MB,7.7-8.7V,200MW,SOT-2	1	S.A
...4	ZD101	0403-001411	DIODE-ZENER;-5.49-5.73V,200MW,SOD-323,T	1	S.A
...4	ZD102	0403-001411	DIODE-ZENER;-5.49-5.73V,200MW,SOD-323,T	1	S.A
...4	ZD103	0403-001411	DIODE-ZENER;-5.49-5.73V,200MW,SOD-323,T	1	S.A
...4	D201	0403-001425	DIODE-ZENER;BZX84C33,31-35V,350MW,SOT-23	1	S.A

Level	Loc. No.	Code No.	Description & Specification	Q'ty	SA/SNA
....4	D602	0403-001435	DIODE-ZENER;QZX363C5V6,5.32-5.88V,200MW,	1	SA
....4	D601	0407-000123	DIODE-ARRAY;DAN202K,80V,100MA,CA2-3,SOT-	1	SA
....4	D917	0407-000123	DIODE-ARRAY;DAN202K,80V,100MA,CA2-3,SOT-	1	SA
....4	Q801	0501-000280	TR-SMALL SIGNAL;KSA1182,PNP,150mW,SOT-23	1	SA
....4	Q200	0501-000342	TR-SMALL SIGNAL;KSC1623-Y,NPN,200mW,SOT-	1	SA
....4	Q600	0501-000342	TR-SMALL SIGNAL;KSC1623-Y,NPN,200mW,SOT-	1	SA
....4	Q601	0501-000342	TR-SMALL SIGNAL;KSC1623-Y,NPN,200mW,SOT-	1	SA
....4	Q602	0501-000342	TR-SMALL SIGNAL;KSC1623-Y,NPN,200mW,SOT-	1	SA
....4	Q603	0501-000342	TR-SMALL SIGNAL;KSC1623-Y,NPN,200mW,SOT-	1	SA
....4	Q809	0501-000344	TR-SMALL SIGNAL;KSC1623-G,NPN,200mW,SOT-	1	SA
....4	Q803	0501-000727	TR-SMALL SIGNAL;BC848C,NPN,310mW,SOT-23,	1	SA
....4	Q805	0501-000727	TR-SMALL SIGNAL;BC848C,NPN,310mW,SOT-23,	1	SA
....4	Q100	0501-002080	TR-SMALL SIGNAL;2SC2412K,NPN,200mW,SC-59	1	SA
....4	Q101	0501-002080	TR-SMALL SIGNAL;2SC2412K,NPN,200mW,SC-59	1	SA
....4	Q201	0501-002080	TR-SMALL SIGNAL;2SC2412K,NPN,200mW,SC-59	1	SA
....4	Q500	0501-002080	TR-SMALL SIGNAL;2SC2412K,NPN,200mW,SC-59	1	SA
....4	Q501	0501-002080	TR-SMALL SIGNAL;2SC2412K,NPN,200mW,SC-59	1	SA
....4	Q502	0501-002080	TR-SMALL SIGNAL;2SC2412K,NPN,200mW,SC-59	1	SA
....4	Q604	0501-002080	TR-SMALL SIGNAL;2SC2412K,NPN,200mW,SC-59	1	SA
....4	Q808	0501-002080	TR-SMALL SIGNAL;2SC2412K,NPN,200mW,SC-59	1	SA
....4	Q900	0501-002080	TR-SMALL SIGNAL;2SC2412K,NPN,200mW,SC-59	1	SA
....4	Q901	0501-002080	TR-SMALL SIGNAL;2SC2412K,NPN,200mW,SC-59	1	SA
....4	Q409	0505-000110	FET-SILICON;2N7002,N,60V,115mA,7.5ohm,0.	1	SA
....4	Q409	0505-000110	FET-SILICON;2N7002,N,60V,115mA,7.5ohm,0.	1	SA
....4	Q409	0505-001170	FET-SILICON;SI9933ADY-T1,P,-20V,3.4A,0.0	1	SA
....4	IC104	0801-002267	IC-CMOS LOGIC;74LCX14,-,SOIC,14P,150MIL,	1	SA
....4	IC109	1003-001826	IC-LCD CONTROLLER;TSU396AWJ-LF,PQFP,128P	1	SA
....4	IC112	1103-000129	IC-EEPROM;24C02,256x8,SOP,8P,5x4mm,4.5/5	1	SA
....4	IC112	1103-001314	IC-EEPROM;24C16,2Kx8,SOP,8P,5x4mm,2.7/5.	1	SA
....4	T0085	1201-001495	IC-AUDIO AMP;7050,SOP,8P,150MIL,DUAL,26D	1	SA
....4	T0085	1201-001980	IC-AUDIO AMP;TDA7266D,SO,20P,16X11.1MM,-	1	SA
....4	T0087	1203-001488	IC-POSIFIXED REG.;7805,TO-252,3P,-,PLAS	1	SA
....4	T0087	1203-001816	IC-POSIFIXED REG.;78M08,TO-252,3P,-,PLA	1	SA
....4	T0087	1203-002842	IC-POSIFIXED REG.;AP1117D-33A,TO-252,3P	1	SA
....4	T0087	1203-002842	IC-POSIFIXED REG.;AP1117D-33A,TO-252,3P	1	SA
....4	T0087	1203-002844	IC-POSIFIXED REG.;AP1117D-18A,TO-252-3L	1	SA
....4	IC108	1203-003015	IC-DC/DC CONVERTER;MP1410ES,SOIC,8P,4.9x	1	SA
....4	IC110	1203-003015	IC-DC/DC CONVERTER;MP1410ES,SOIC,8P,4.9x	1	SA
....4	R944	2007-000043	R-CHIP;1Kohm,1%,1/10W,TP,1608	1	SA
....4	R948	2007-000052	R-CHIP;10Kohm,1%,1/10W,TP,1608	1	SA
....4	R949	2007-000052	R-CHIP;10Kohm,1%,1/10W,TP,1608	1	SA
....4	20INCH	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	1	SA
....4	PAL	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	1	SA
....4	R100	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	1	SA
....4	R205	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	1	SA
....4	R207	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	1	SA
....4	R208	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	1	SA
....4	R253	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	1	SA
....4	R311	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	1	SA
....4	R510	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	1	SA
....4	R512	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	1	SA
....4	R516	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	1	SA
....4	R801	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	1	SA
....4	R844	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	1	SA
....4	R849	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	1	SA
....4	R884	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	1	SA
....4	R203	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	SA
....4	R204	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	SA
....4	R602	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	SA
....4	R603	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	SA
....4	R628	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	SA
....4	R803	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	SA
....4	R804	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	SA
....4	R805	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	SA
....4	R807	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	SA
....4	R808	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	SA
....4	R809	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	SA
....4	R810	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	SA
....4	R811	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	SA
....4	R812	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	SA
....4	R813	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	SA
....4	R814	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	SA
....4	R815	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	SA

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Level	Loc. No.	Code No.	Description & Specification	Q'ty	SA/SNA
...4	R816	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
...4	R817	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
...4	R818	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
...4	R819	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
...4	R820	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
...4	R821	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
...4	R822	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
...4	R823	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
...4	R836	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
...4	R839	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
...4	R858	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
...4	R859	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
...4	R878	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
...4	R879	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
...4	R882	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
...4	R890	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
...4	R894	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
...4	R895	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
...4	R905	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
...4	R907	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
...4	R910	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
...4	R945	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
...4	R950	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
...4	R951	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
...4	R952	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
...4	R956	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
...4	R957	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
...4	R962	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
...4	R970	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A
...4	R940	2007-000075	R-CHIP;220ohm,5%,1/10W,TP,1608	1	S.A
...4	R942	2007-000075	R-CHIP;220ohm,5%,1/10W,TP,1608	1	S.A
...4	R200	2007-000076	R-CHIP;330ohm,5%,1/10W,TP,1608	1	S.A
...4	R415	2007-000077	R-CHIP;470ohm,5%,1/10W,TP,1608	1	S.A
...4	R416	2007-000077	R-CHIP;470ohm,5%,1/10W,TP,1608	1	S.A
...4	R975	2007-000077	R-CHIP;470ohm,5%,1/10W,TP,1608	1	S.A
...4	R231	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	1	S.A
...4	R233	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	1	S.A
...4	R410	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	1	S.A
...4	R411	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	1	S.A
...4	R412	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	1	S.A
...4	R604	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	1	S.A
...4	R611	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	1	S.A
...4	R619	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	1	S.A
...4	R623	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	1	S.A
...4	R828	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	1	S.A
...4	R888	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	1	S.A
...4	R889	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	1	S.A
...4	R931	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	1	S.A
...4	R932	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	1	S.A
...4	R229	2007-000079	R-CHIP;1.8Kohm,5%,1/10W,TP,1608	1	S.A
...4	R230	2007-000079	R-CHIP;1.8Kohm,5%,1/10W,TP,1608	1	S.A
...4	R624	2007-000081	R-CHIP;2.7Kohm,5%,1/10W,TP,1608	1	S.A
...4	R625	2007-000081	R-CHIP;2.7Kohm,5%,1/10W,TP,1608	1	S.A
...4	R961	2007-000081	R-CHIP;2.7Kohm,5%,1/10W,TP,1608	1	S.A
...4	R228	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
...4	R402	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
...4	R408	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
...4	R409	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
...4	R600	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
...4	R601	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
...4	R607	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
...4	R609	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
...4	R614	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
...4	R615	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
...4	R626	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
...4	R800	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
...4	R802	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
...4	R860	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
...4	R861	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
...4	R880	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
...4	R881	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
...4	R885	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A
...4	R900	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A

Level	Loc. No.	Code No.	Description & Specification	Q'ty	SA/SNA
....4	R901	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	SA
....4	R911	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	SA
....4	R912	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	SA
....4	R914	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	SA
....4	R924	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	SA
....4	R927	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	SA
....4	R928	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	SA
....4	R929	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	SA
....4	R930	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	SA
....4	R946	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	SA
....4	R173	2007-000087	R-CHIP;6.8Kohm,5%,1/10W,TP,1608	1	SA
....4	R114	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	SA
....4	R174	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	SA
....4	R209	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	SA
....4	R404	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	SA
....4	R405	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	SA
....4	R406	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	SA
....4	R407	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	SA
....4	R605	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	SA
....4	R606	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	SA
....4	R608	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	SA
....4	R610	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	SA
....4	R627	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	SA
....4	R873	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	SA
....4	R876	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	SA
....4	R915	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	SA
....4	R916	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	SA
....4	R921	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	SA
....4	R922	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	SA
....4	R938	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	SA
....4	R947	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	SA
....4	R955	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	SA
....4	R958	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	SA
....4	R971	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	SA
....4	R972	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	SA
....4	R976	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	SA
....4	R167	2007-000091	R-CHIP;12Kohm,5%,1/10W,TP,1608	1	SA
....4	R831	2007-000091	R-CHIP;12Kohm,5%,1/10W,TP,1608	1	SA
....4	R612	2007-000093	R-CHIP;20Kohm,5%,1/10W,TP,1608	1	SA
....4	R613	2007-000093	R-CHIP;20Kohm,5%,1/10W,TP,1608	1	SA
....4	R616	2007-000093	R-CHIP;20Kohm,5%,1/10W,TP,1608	1	SA
....4	R202	2007-000094	R-CHIP;22Kohm,5%,1/10W,TP,1608	1	SA
....4	R116	2007-000102	R-CHIP;100Kohm,5%,1/10W,TP,1608	1	SA
....4	R120	2007-000102	R-CHIP;100Kohm,5%,1/10W,TP,1608	1	SA
....4	R121	2007-000102	R-CHIP;100Kohm,5%,1/10W,TP,1608	1	SA
....4	R201	2007-000102	R-CHIP;100Kohm,5%,1/10W,TP,1608	1	SA
....4	R853	2007-000102	R-CHIP;100Kohm,5%,1/10W,TP,1608	1	SA
....4	R617	2007-000103	R-CHIP;120Kohm,5%,1/10W,TP,1608	1	SA
....4	R845	2007-000106	R-CHIP;220Kohm,5%,1/10W,TP,1608	1	SA
....4	R618	2007-000116	R-CHIP;120ohm,5%,1/10W,TP,1608	1	SA
....4	R622	2007-000116	R-CHIP;120ohm,5%,1/10W,TP,1608	1	SA
....4	R933	2007-000116	R-CHIP;120ohm,5%,1/10W,TP,1608	1	SA
....4	R935	2007-000116	R-CHIP;120ohm,5%,1/10W,TP,1608	1	SA
....4	R936	2007-000116	R-CHIP;120ohm,5%,1/10W,TP,1608	1	SA
....4	R937	2007-000116	R-CHIP;120ohm,5%,1/10W,TP,1608	1	SA
....4	R939	2007-000116	R-CHIP;120ohm,5%,1/10W,TP,1608	1	SA
....4	R941	2007-000116	R-CHIP;120ohm,5%,1/10W,TP,1608	1	SA
....4	R413	2007-000118	R-CHIP;390ohm,5%,1/10W,TP,1608	1	SA
....4	R851	2007-000118	R-CHIP;390ohm,5%,1/10W,TP,1608	1	SA
....4	R852	2007-000120	R-CHIP;680ohm,5%,1/10W,TP,1608	1	SA
....4	R973	2007-000120	R-CHIP;680ohm,5%,1/10W,TP,1608	1	SA
....4	R848	2007-000130	R-CHIP;39Kohm,5%,1/10W,TP,1608	1	SA
....4	R896	2007-000234	R-CHIP;1.3Kohm,5%,1/10W,TP,1608	1	SA
....4	R833	2007-000239	R-CHIP;1.5Kohm,1%,1/10W,TP,1608	1	SA
....4	R824	2007-000287	R-CHIP;100OHM,1%,1/10W,TP,1608	1	SA
....4	R825	2007-000287	R-CHIP;100OHM,1%,1/10W,TP,1608	1	SA
....4	R826	2007-000287	R-CHIP;100OHM,1%,1/10W,TP,1608	1	SA
....4	R620	2007-000309	R-CHIP;10ohm,5%,1/10W,TP,1608	1	SA
....4	R621	2007-000309	R-CHIP;10ohm,5%,1/10W,TP,1608	1	SA
....4	R837	2007-000309	R-CHIP;10ohm,5%,1/10W,TP,1608	1	SA
....4	R953	2007-000309	R-CHIP;10ohm,5%,1/10W,TP,1608	1	SA
....4	R954	2007-000309	R-CHIP;10ohm,5%,1/10W,TP,1608	1	SA
....4	R897	2007-000402	R-CHIP;150ohm,5%,1/10W,TP,1608	1	SA

6 Electrical Parts List

Level	Loc. No.	Code No.	Description & Specification	Q'ty	SA/SNA
...4	R925	2007-000402	R-CHIP;150ohm,5%,1/10W,TP,1608	1	S.A
...4	R871	2007-000503	R-CHIP;2.2ohm,5%,1/10W,TP,1608	1	S.A
...4	R872	2007-000503	R-CHIP;2.2ohm,5%,1/10W,TP,1608	1	S.A
...4	R874	2007-000503	R-CHIP;2.2ohm,5%,1/10W,TP,1608	1	S.A
...4	R875	2007-000503	R-CHIP;2.2ohm,5%,1/10W,TP,1608	1	S.A
...4	R926	2007-000570	R-CHIP;220OHM,1%,1/10W,TP,1608	1	S.A
...4	R899	2007-000659	R-CHIP;27ohm,5%,1/10W,TP,1608	1	S.A
...4	R169	2007-000708	R-CHIP;3.9Kohm,1%,1/10W,TP,1608	1	S.A
...4	R832	2007-000882	R-CHIP;4.7ohm,5%,1/10W,TP,1608	1	S.A
...4	R171	2007-000913	R-CHIP;43Kohm,5%,1/10W,TP,1608	1	S.A
...4	R500	2007-000929	R-CHIP;470ohm,1%,1/10W,TP,1608	1	S.A
...4	R501	2007-000929	R-CHIP;470ohm,1%,1/10W,TP,1608	1	S.A
...4	R502	2007-000929	R-CHIP;470ohm,1%,1/10W,TP,1608	1	S.A
...4	R503	2007-000929	R-CHIP;470ohm,1%,1/10W,TP,1608	1	S.A
...4	R504	2007-000929	R-CHIP;470ohm,1%,1/10W,TP,1608	1	S.A
...4	R505	2007-000929	R-CHIP;470ohm,1%,1/10W,TP,1608	1	S.A
...4	R115	2007-000939	R-CHIP;47Kohm,1%,1/10W,TP,1608	1	S.A
...4	R211	2007-000939	R-CHIP;47Kohm,1%,1/10W,TP,1608	1	S.A
...4	R168	2007-000965	R-CHIP;5.1Kohm,5%,1/10W,TP,1608	1	S.A
...4	R172	2007-000965	R-CHIP;5.1Kohm,5%,1/10W,TP,1608	1	S.A
...4	R830	2007-001002	R-CHIP;510ohm,5%,1/10W,TP,1608	1	S.A
...4	R974	2007-001002	R-CHIP;510ohm,5%,1/10W,TP,1608	1	S.A
...4	R829	2007-001134	R-CHIP;68ohm,5%,1/10W,TP,1608	1	S.A
...4	R883	2007-001134	R-CHIP;68ohm,5%,1/10W,TP,1608	1	S.A
...4	R210	2007-001139	R-CHIP;7.5Kohm,1%,1/10W,TP,1608	1	S.A
...4	R902	2007-001164	R-CHIP;75ohm,1%,1/10W,TP,1608	1	S.A
...4	R903	2007-001164	R-CHIP;75ohm,1%,1/10W,TP,1608	1	S.A
...4	R904	2007-001164	R-CHIP;75ohm,1%,1/10W,TP,1608	1	S.A
...4	R917	2007-001164	R-CHIP;75ohm,1%,1/10W,TP,1608	1	S.A
...4	R918	2007-001164	R-CHIP;75ohm,1%,1/10W,TP,1608	1	S.A
...4	R919	2007-001164	R-CHIP;75ohm,1%,1/10W,TP,1608	1	S.A
...4	R934	2007-001164	R-CHIP;75ohm,1%,1/10W,TP,1608	1	S.A
...4	R943	2007-001164	R-CHIP;75ohm,1%,1/10W,TP,1608	1	S.A
...4	R960	2007-001164	R-CHIP;75ohm,1%,1/10W,TP,1608	1	S.A
...4	R906	2007-001167	R-CHIP;75ohm,5%,1/10W,TP,1608	1	S.A
...4	R908	2007-001167	R-CHIP;75ohm,5%,1/10W,TP,1608	1	S.A
...4	R909	2007-001167	R-CHIP;75ohm,5%,1/10W,TP,1608	1	S.A
...4	R959	2007-001167	R-CHIP;75ohm,5%,1/10W,TP,1608	1	S.A
...4	RA401	2011-000002	R-NET;22ohm,5%,1/16W,L,CHIP,8P,TP,3216	1	S.A
...4	RA402	2011-000002	R-NET;22ohm,5%,1/16W,L,CHIP,8P,TP,3216	1	S.A
...4	RA403	2011-000002	R-NET;22ohm,5%,1/16W,L,CHIP,8P,TP,3216	1	S.A
...4	RA404	2011-000002	R-NET;22ohm,5%,1/16W,L,CHIP,8P,TP,3216	1	S.A
...4	RA405	2011-000002	R-NET;22ohm,5%,1/16W,L,CHIP,8P,TP,3216	1	S.A
...4	RA406	2011-000002	R-NET;22ohm,5%,1/16W,L,CHIP,8P,TP,3216	1	S.A
...4	RA412	2011-001001	R-NET;0ohm,5%,1/16W,L,CHIP,8P,TP,3.2x1.6	1	S.A
...4	C106	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	1	S.A
...4	C107	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	1	S.A
...4	C108	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	1	S.A
...4	C136	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	1	S.A
...4	C143	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	1	S.A
...4	C163	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	1	S.A
...4	C175	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	1	S.A
...4	C176	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	1	S.A
...4	C179	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	1	S.A
...4	C183	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	1	S.A
...4	C186	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	1	S.A
...4	C190	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	1	S.A
...4	C193	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	1	S.A
...4	C217	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	1	S.A
...4	C468	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	1	S.A
...4	C607	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	1	S.A
...4	C609	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	1	S.A
...4	C615	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	1	S.A
...4	C620	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	1	S.A
...4	C874	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	1	S.A
...4	C910	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	1	S.A
...4	C918	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	1	S.A
...4	C919	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	1	S.A
...4	C965	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	1	S.A
...4	C182	2203-000236	C-CER,CHIP;0.1nF,5%,50V,C0G,1608	1	S.A
...4	C189	2203-000236	C-CER,CHIP;0.1nF,5%,50V,C0G,1608	1	S.A
...4	C208	2203-000236	C-CER,CHIP;0.1nF,5%,50V,C0G,1608	1	S.A
...4	C209	2203-000236	C-CER,CHIP;0.1nF,5%,50V,C0G,1608	1	S.A

Level	Loc. No.	Code No.	Description & Specification	Q'ty	SA/SNA
....4	C502	2203-000236	C-CER,CHIP;0.1nF,5%,50V,C0G,1608	1	SA
....4	C503	2203-000236	C-CER,CHIP;0.1nF,5%,50V,C0G,1608	1	SA
....4	C504	2203-000236	C-CER,CHIP;0.1nF,5%,50V,C0G,1608	1	SA
....4	C900	2203-000236	C-CER,CHIP;0.1nF,5%,50V,C0G,1608	1	SA
....4	C901	2203-000236	C-CER,CHIP;0.1nF,5%,50V,C0G,1608	1	SA
....4	C907	2203-000236	C-CER,CHIP;0.1nF,5%,50V,C0G,1608	1	SA
....4	C908	2203-000236	C-CER,CHIP;0.1nF,5%,50V,C0G,1608	1	SA
....4	C922	2203-000236	C-CER,CHIP;0.1nF,5%,50V,C0G,1608	1	SA
....4	C931	2203-000236	C-CER,CHIP;0.1nF,5%,50V,C0G,1608	1	SA
....4	C932	2203-000236	C-CER,CHIP;0.1nF,5%,50V,C0G,1608	1	SA
....4	C933	2203-000236	C-CER,CHIP;0.1nF,5%,50V,C0G,1608	1	SA
....4	C180	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,1608	1	SA
....4	C181	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,1608	1	SA
....4	C187	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,1608	1	SA
....4	C188	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,1608	1	SA
....4	C200	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,1608	1	SA
....4	C205	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,1608	1	SA
....4	C245	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,1608	1	SA
....4	C248	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,1608	1	SA
....4	C470	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,1608	1	SA
....4	C809	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,1608	1	SA
....4	C811	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,1608	1	SA
....4	C836	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,1608	1	SA
....4	C846	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,1608	1	SA
....4	C838	2203-000440	C-CER,CHIP;1nF,10%,50V,X7R,1608	1	SA
....4	C885	2203-000440	C-CER,CHIP;1nF,10%,50V,X7R,1608	1	SA
....4	C892	2203-000440	C-CER,CHIP;1nF,10%,50V,X7R,1608	1	SA
....4	C893	2203-000440	C-CER,CHIP;1nF,10%,50V,X7R,1608	1	SA
....4	C894	2203-000440	C-CER,CHIP;1nF,10%,50V,X7R,1608	1	SA
....4	C895	2203-000440	C-CER,CHIP;1nF,10%,50V,X7R,1608	1	SA
....4	C954	2203-000440	C-CER,CHIP;1nF,10%,50V,X7R,1608	1	SA
....4	C955	2203-000440	C-CER,CHIP;1nF,10%,50V,X7R,1608	1	SA
....4	C956	2203-000440	C-CER,CHIP;1nF,10%,50V,X7R,1608	1	SA
....4	C967	2203-000440	C-CER,CHIP;1nF,10%,50V,X7R,1608	1	SA
....4	C202	2203-000491	C-CER,CHIP;2.2nF,10%,50V,X7R,1608	1	SA
....4	C611	2203-000491	C-CER,CHIP;2.2nF,10%,50V,X7R,1608	1	SA
....4	C612	2203-000491	C-CER,CHIP;2.2nF,10%,50V,X7R,1608	1	SA
....4	C415	2203-000626	C-CER,CHIP;0.022nF,5%,50V,C0G,1608	1	SA
....4	C416	2203-000626	C-CER,CHIP;0.022nF,5%,50V,C0G,1608	1	SA
....4	C236	2203-000783	C-CER,CHIP;0.33nF,5%,50V,C0G,1608	1	SA
....4	C237	2203-000783	C-CER,CHIP;0.33nF,5%,50V,C0G,1608	1	SA
....4	C911	2203-000783	C-CER,CHIP;0.33nF,5%,50V,C0G,1608	1	SA
....4	C913	2203-000783	C-CER,CHIP;0.33nF,5%,50V,C0G,1608	1	SA
....4	C902	2203-000815	C-CER,CHIP;0.033nF,5%,50V,C0G,1608	1	SA
....4	C903	2203-000815	C-CER,CHIP;0.033nF,5%,50V,C0G,1608	1	SA
....4	C904	2203-000815	C-CER,CHIP;0.033nF,5%,50V,C0G,1608	1	SA
....4	C905	2203-000815	C-CER,CHIP;0.033nF,5%,50V,C0G,1608	1	SA
....4	C906	2203-000815	C-CER,CHIP;0.033nF,5%,50V,C0G,1608	1	SA
....4	C934	2203-000815	C-CER,CHIP;0.033nF,5%,50V,C0G,1608	1	SA
....4	C964	2203-000815	C-CER,CHIP;0.033nF,5%,50V,C0G,1608	1	SA
....4	C204	2203-000888	C-CER,CHIP;4.7nF,10%,50V,X7R,1608	1	SA
....4	C207	2203-000972	C-CER,CHIP;47nF,10%,16V,X7R,TP,1608	1	SA
....4	C427	2203-000972	C-CER,CHIP;47nF,10%,16V,X7R,TP,1608	1	SA
....4	C430	2203-000972	C-CER,CHIP;47nF,10%,16V,X7R,TP,1608	1	SA
....4	C431	2203-000972	C-CER,CHIP;47nF,10%,16V,X7R,TP,1608	1	SA
....4	C432	2203-000972	C-CER,CHIP;47nF,10%,16V,X7R,TP,1608	1	SA
....4	C433	2203-000972	C-CER,CHIP;47nF,10%,16V,X7R,TP,1608	1	SA
....4	C434	2203-000972	C-CER,CHIP;47nF,10%,16V,X7R,TP,1608	1	SA
....4	C831	2203-001103	C-CER,CHIP;6.8nF,10%,50V,X7R,1608	1	SA
....4	C614	2203-001402	C-CER,CHIP;220nF,+80-20%,16V,Y5V,TP,1608	1	SA
....4	C617	2203-001402	C-CER,CHIP;220nF,+80-20%,16V,Y5V,TP,1608	1	SA
....4	C618	2203-001402	C-CER,CHIP;220nF,+80-20%,16V,Y5V,TP,1608	1	SA
....4	C621	2203-001402	C-CER,CHIP;220nF,+80-20%,16V,Y5V,TP,1608	1	SA
....4	C206	2203-001607	C-CER,CHIP;0.22nF,5%,50V,NP0,1608	1	SA
....4	C963	2203-001607	C-CER,CHIP;0.22nF,5%,50V,NP0,1608	1	SA
....4	C616	2203-001652	C-CER,CHIP;470nF,+80-20%,16V,Y5V,1608	1	SA
....4	C619	2203-001652	C-CER,CHIP;470nF,+80-20%,16V,Y5V,1608	1	SA
....4	C624	2203-001652	C-CER,CHIP;470nF,+80-20%,16V,Y5V,1608	1	SA
....4	C625	2203-001652	C-CER,CHIP;470nF,+80-20%,16V,Y5V,1608	1	SA
....4	C211	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	SA
....4	C401	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	SA
....4	C402	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	SA
....4	C403	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	SA

6 Electrical Parts List

[illegible]

Level	Loc. No.	Code No.	Description & Specification	Q'ty	SA/SNA
....4	C601	2203-006036	C-CER,CHIP;680NF,+80-20%,16V,Y5V,TP,1608	1	SA
....4	C602	2203-006036	C-CER,CHIP;680NF,+80-20%,16V,Y5V,TP,1608	1	SA
....4	C847	2203-006036	C-CER,CHIP;680NF,+80-20%,16V,Y5V,TP,1608	1	SA
....4	C848	2203-006036	C-CER,CHIP;680NF,+80-20%,16V,Y5V,TP,1608	1	SA
....4	C849	2203-006036	C-CER,CHIP;680NF,+80-20%,16V,Y5V,TP,1608	1	SA
....4	C850	2203-006036	C-CER,CHIP;680NF,+80-20%,16V,Y5V,TP,1608	1	SA
....4	C881	2203-006036	C-CER,CHIP;680NF,+80-20%,16V,Y5V,TP,1608	1	SA
....4	C882	2203-006036	C-CER,CHIP;680NF,+80-20%,16V,Y5V,TP,1608	1	SA
....4	C800	2203-006170	C-CER,CHIP;220nF,10%,16V,X7R,1608	1	SA
....4	C801	2203-006170	C-CER,CHIP;220nF,10%,16V,X7R,1608	1	SA
....4	C804	2203-006170	C-CER,CHIP;220nF,10%,16V,X7R,1608	1	SA
....4	C810	2203-006170	C-CER,CHIP;220nF,10%,16V,X7R,1608	1	SA
....4	C814	2203-006170	C-CER,CHIP;220nF,10%,16V,X7R,1608	1	SA
....4	C825	2203-006170	C-CER,CHIP;220nF,10%,16V,X7R,1608	1	SA
....4	C871	2203-006170	C-CER,CHIP;220nF,10%,16V,X7R,1608	1	SA
....4	C872	2203-006170	C-CER,CHIP;220nF,10%,16V,X7R,1608	1	SA
....4	C957	2203-006170	C-CER,CHIP;220nF,10%,16V,X7R,1608	1	SA
....4	C802	2402-001059	C-AL,SMD;220UF,20%,6.3V,-,TP,6X6.6X6.6	1	SA
....4	C110	2402-001081	C-AL,SMD;100uF,20%,25V,WT,TP,8.3x8.3x10	1	SA
....4	C184	2402-001081	C-AL,SMD;100uF,20%,25V,WT,TP,8.3x8.3x10	1	SA
....4	C191	2402-001081	C-AL,SMD;100uF,20%,25V,WT,TP,8.3x8.3x10	1	SA
....4	C100	2402-001086	C-AL,SMD;100UF,20%,16V,WT,TP,6.6X6.6X5.3	1	SA
....4	C114	2402-001086	C-AL,SMD;100UF,20%,16V,WT,TP,6.6X6.6X5.3	1	SA
....4	C135	2402-001086	C-AL,SMD;100UF,20%,16V,WT,TP,6.6X6.6X5.3	1	SA
....4	C192	2402-001086	C-AL,SMD;100UF,20%,16V,WT,TP,6.6X6.6X5.3	1	SA
....4	C469	2402-001086	C-AL,SMD;100UF,20%,16V,WT,TP,6.6X6.6X5.3	1	SA
....4	C105	2402-001128	C-AL,SMD;100UF,20%,16V,WT,TP,6.3X5.7MM	1	SA
....4	C109	2402-001128	C-AL,SMD;100UF,20%,16V,WT,TP,6.3X5.7MM	1	SA
....4	C111	2402-001128	C-AL,SMD;100UF,20%,16V,WT,TP,6.3X5.7MM	1	SA
....4	C178	2402-001128	C-AL,SMD;100UF,20%,16V,WT,TP,6.3X5.7MM	1	SA
....4	C201	2402-001128	C-AL,SMD;100UF,20%,16V,WT,TP,6.3X5.7MM	1	SA
....4	C604	2402-001128	C-AL,SMD;100UF,20%,16V,WT,TP,6.3X5.7MM	1	SA
....4	C606	2402-001128	C-AL,SMD;100UF,20%,16V,WT,TP,6.3X5.7MM	1	SA
....4	C608	2402-001128	C-AL,SMD;100UF,20%,16V,WT,TP,6.3X5.7MM	1	SA
....4	C613	2402-001128	C-AL,SMD;100UF,20%,16V,WT,TP,6.3X5.7MM	1	SA
....4	C622	2402-001128	C-AL,SMD;100UF,20%,16V,WT,TP,6.3X5.7MM	1	SA
....4	C805	2402-001128	C-AL,SMD;100UF,20%,16V,WT,TP,6.3X5.7MM	1	SA
....4	C819	2402-001128	C-AL,SMD;100UF,20%,16V,WT,TP,6.3X5.7MM	1	SA
....4	C822	2402-001128	C-AL,SMD;100UF,20%,16V,WT,TP,6.3X5.7MM	1	SA
....4	C827	2402-001128	C-AL,SMD;100UF,20%,16V,WT,TP,6.3X5.7MM	1	SA
....4	C828	2402-001128	C-AL,SMD;100UF,20%,16V,WT,TP,6.3X5.7MM	1	SA
....4	C623	2402-001129	C-AL,SMD;47UF,20%,16V,WT,TP,6.3X5.2MM	1	SA
....4	C212	2402-001149	C-AL,SMD;22UF,20%,16V,-,TP,5X5.8MM	1	SA
....4	C605	2402-001183	C-AL,SMD;22UF,20%,16V,WT,TP,5.3X5.3X6MM	1	SA
....4	C839	2402-001185	C-AL,SMD;2.2UF,20%,50V,WT,TP,4.3X4.3X6MM	1	SA
....4	C842	2402-001185	C-AL,SMD;2.2UF,20%,50V,WT,TP,4.3X4.3X6MM	1	SA
....4	C210	2402-001216	C-AL,SMD;470uF,20%,16V,WT,TP,10.3x10.3x1	1	SA
....4	C610	2402-001218	C-AL,SMD;22UF,20%,35V,WT,TP,6.6X6.6X5.8M	1	SA
....4	C880	2402-001230	C-AL,SMD;2.2uF,i $\frac{3}{4}$ 20%,35V,WT,TP,3*5.2	1	SA
....4	C883	2402-001230	C-AL,SMD;2.2uF,i $\frac{3}{4}$ 20%,35V,WT,TP,3*5.2	1	SA
....4	C213	2402-001238	C-AL,SMD;1uF,20%,50V,HR,TP,4.3x4.3x5.2mm	1	SA
....4	C185	2409-001065	C-ORGANIC;82UF,20%,16V,WT,TP,8X6.9MM,-	1	SA
....4	T0052	2703-000185	INDUCTOR-SMD;3.3uH,10%,2012	1	SA
....4	T0052	2703-000185	INDUCTOR-SMD;3.3uH,10%,2012	1	SA
....4	T0052	2703-000185	INDUCTOR-SMD;3.3uH,10%,2012	1	SA
....4	T0052	2703-000185	INDUCTOR-SMD;3.3uH,10%,2012	1	SA
....4	T0052	2703-000185	INDUCTOR-SMD;3.3uH,10%,2012	1	SA
....4	T0052	2703-000185	INDUCTOR-SMD;3.3uH,10%,2012	1	SA
....4	T0052	2703-000222	INDUCTOR-SMD;560nH,10%,2012	1	SA
....4	T0052	2703-000398	INDUCTOR-SMD;10uH,10%,3225	1	SA
....4	T0052	2703-000398	INDUCTOR-SMD;10uH,10%,3225	1	SA
....4	T0052	2703-000398	INDUCTOR-SMD;10uH,10%,3225	1	SA
....4	T0052	2703-000417	INDUCTOR-SMD;220uH,5%,3225	1	SA
....4	T0052	2703-001426	INDUCTOR-SMD;680uH,20%,7070	1	SA
....4	T0052	2703-002327	INDUCTOR-SMD;3.9uH,5%,3225	1	SA
....4	X400	2801-003667	CRYSTAL-SMD;14.31818MHz,30ppm,28-AAN,16,	1	SA
....4	X800	2801-003804	CRYSTAL-SMD;24.576MHZ,30PPM,28-AAN,20PF,	1	SA
....4	T0568	3301-000314	BEAD-SMD;120ohm,1.6x0.8x0.8mm,150mA,,,,4	1	S.N.A
....4	T0568	3301-000314	BEAD-SMD;120ohm,1.6x0.8x0.8mm,150mA,,,,4	1	S.N.A
....4	T0568	3301-000314	BEAD-SMD;120ohm,1.6x0.8x0.8mm,150mA,,,,4	1	S.N.A
....4	T0568	3301-000314	BEAD-SMD;120ohm,1.6x0.8x0.8mm,150mA,,,,4	1	S.N.A
....4	T0568	3301-000314	BEAD-SMD;120ohm,1.6x0.8x0.8mm,150mA,,,,4	1	S.N.A
....4	T0568	3301-000314	BEAD-SMD;120ohm,1.6x0.8x0.8mm,150mA,,,,4	1	S.N.A

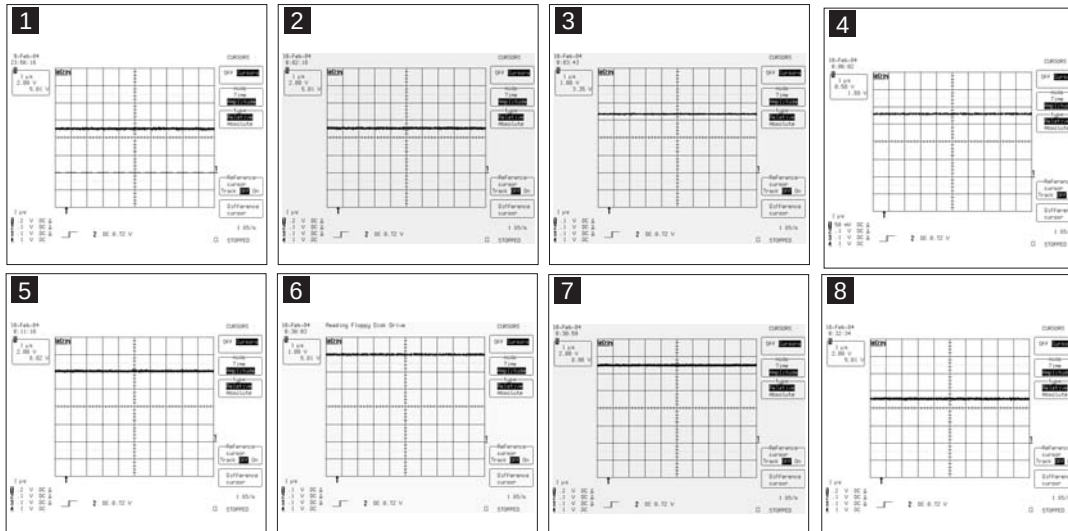
6 Electrical Parts List

Level	Loc. No.	Code No.	Description & Specification	Q'ty	SA/SNA
...4	T0568	3301-000314	BEAD-SMD;120ohm,1.6x0.8x0.8mm,150mA,,,4	1	S.N.A
...4	T0568	3301-000314	BEAD-SMD;120ohm,1.6x0.8x0.8mm,150mA,,,4	1	S.N.A
...4	T0568	3301-000314	BEAD-SMD;120ohm,1.6x0.8x0.8mm,150mA,,,4	1	S.N.A
...4	T0568	3301-000314	BEAD-SMD;120ohm,1.6x0.8x0.8mm,150mA,,,4	1	S.N.A
...4	T0568	3301-000314	BEAD-SMD;120ohm,1.6x0.8x0.8mm,150mA,,,4	1	S.N.A
...4	T0568	3301-000314	BEAD-SMD;120ohm,1.6x0.8x0.8mm,150mA,,,4	1	S.N.A
...4	T0568	3301-000314	BEAD-SMD;120ohm,1.6x0.8x0.8mm,150mA,,,4	1	S.N.A
...4	T0568	3301-000314	BEAD-SMD;120ohm,1.6x0.8x0.8mm,150mA,,,4	1	S.N.A
...4	T0568	3301-001145	BEAD-SMD;60OHM,4516,6000,TP,70OHM/45MHZ,	1	S.N.A
...4	T0568	3301-001145	BEAD-SMD;60OHM,4516,6000,TP,70OHM/45MHZ,	1	S.N.A
...4	T0568	3301-001145	BEAD-SMD;60OHM,4516,6000,TP,70OHM/45MHZ,	1	S.N.A
...4	T0568	3301-001145	BEAD-SMD;60OHM,4516,6000,TP,70OHM/45MHZ,	1	S.N.A
...4	T0568	3301-001145	BEAD-SMD;60OHM,4516,6000,TP,70OHM/45MHZ,	1	S.N.A
...4	T0568	3301-001404	BEAD-SMD;30ohm,2012,5000mA,TP,,,0.01ohm	1	S.N.A
...4	T0568	3301-001569	BEAD-SMD;600ohm,2012,1000mA,TP,520ohm/90	1	S.N.A
...4	T0568	3301-001569	BEAD-SMD;600ohm,2012,1000mA,TP,520ohm/90	1	S.N.A
...4	T0568	3301-001569	BEAD-SMD;600ohm,2012,1000mA,TP,520ohm/90	1	S.N.A
...4	T0568	3301-001569	BEAD-SMD;600ohm,2012,1000mA,TP,520ohm/90	1	S.N.A
...4	T0568	3301-001569	BEAD-SMD;600ohm,2012,1000mA,TP,520ohm/90	1	S.N.A
...4	T0568	3301-001569	BEAD-SMD;600ohm,2012,1000mA,TP,520ohm/90	1	S.N.A
...4	T0568	3301-001569	BEAD-SMD;600ohm,2012,1000mA,TP,520ohm/90	1	S.N.A
...4	CN402	3708-001763	CONNECTOR-FPC/FFC/PIC;50P,0.5MM,SMD-A,SN	1	S.A
...4	CN601	3711-005291	HEADER-BOARD TO CABLE;BOX,2P,1R,2MM,SMD-	1	S.A
...4	CN600	3711-005292	HEADER-BOARD TO CABLE;BOX,3P,1R,2MM,SMD-	1	S.A
...4	CN907	3711-005471	HEADER-BOARD TO CABLE;BOX,12P,1R,1.25mm,	1	S.A
...4	CN906	3711-005472	HEADER-BOARD TO CABLE;BOX,20P,1R,1.25mm,	1	S.A
...4	CN905	3711-005543	HEADER-BOARD TO CABLE;BOX,6P,1R,1.25mm,S	1	S.A
...4	T0010	BN27-00009A	COIL CHOKE;SMD 12X12X6,EOS,33UH,15%,-.0.	1	S.A
...4	T0010	BN27-00009A	COIL CHOKE;SMD 12X12X6,EOS,33UH,15%,-.0.	1	S.A
...4	T0077	BN41-00641A	PCB MAIN;Venice Plus,FR-4,4,1.0,1.6,160*	1	S.N.A
...4	M0018	BN97-00648G	ASSY MICOM;PL20KE,20050519,TDA15001H,PHI	1	S.A
....5	T0119	BN09-00010A	IC MICOM;TDA15021H-MTP,MH17ES,128,5.5V,2	1	S.A
...3	CIS3	BN40-00077A	TUNER;TECH0849PG31B(S),TECH0849PG31B(S),	1	S.A
0.1	M0113	BN92-00982U	ASSY P/MATERIAL;VE20UO	1	S.N.A
..2	T0524	6902-000358	BAG PE;HDPE/NITRON(DOUBLE),T0.02/T0.5,W9	1	S.N.A
..2	T0376	6902-000379	BAG AIR;LDPE,T0.2,W1000,L1800,TRP,-,-	0.034	S.N.A
..2	P/M	6902-000604	BAG WRAPPING;LDPE,T0.02,W500,L10000,TRP,	3	S.N.A
..2	M0081	6902-000609	BAG ROLL;LDPE,T0.05,W2400,L1000,TRP,-,-	0.1	S.N.A
0.1	M0019	BN92-01063J	ASSY LABEL;LW20M21CX/XEC	1	S.N.A
0.1	M0045	BN92-01546Y	ASSY ACCESSORY;LW20M21CPX/XEC,PL20KE,BOE	1	S.N.A
..2	T0074	BN59-00437A	REMOCON;TM79,Single Micom,36,EX,NT,EX,VE	1	S.A
..2	M0596	BN68-00958A	MANUAL USERS-00;COMM,SAMSUNG,ENG,SPA,FRE	1	S.N.A
..2	M0045	BN96-00645J	ASSY ACCESSORY;MU15EO	1	S.A
...3	T0524	6902-000110	BAG PE;LDPE,T0.05,W250,L400,TRP,28,2	1	S.N.A
...3	T0268	3903-000042	CBF-POWER CORD;DT,EU,FP3/YES,IEC320 C13/	1	S.A
..2	T0907	BN96-01271A	ASSY MISC P-BRKT WALL;VE20UO	1	S.A
...3	T0101	BN61-01163A	BRACKET-WALL;VE20,SECC,2.0	1	S.A
...3	M0132	BN96-01273A	ASSY MISC P-SCREW;VE20UO	1	S.N.A
...3	CIS	6902-000128	BAG ZIPPER;LDPE,T0.05,W200,L150,TRP,8,2-	1	S.N.A
...3	CIS	BN68-00812A	MANUAL-WALL POSITION;20M2,PAPER,ENG,235,235,	1	S.N.A
...3	CIS	BN68-00813A	MANUAL-WALL MOUNT;VENICE 20 W/W,ENG,PAPE	1	S.N.A
..2	M0045	BN96-02862F	ASSY ACCESSORY;LW20M21CPX/XEC,PL20KE,BOE	1	S.A
...3	T0524	6902-000110	BAG PE;LDPE,T0.05,W250,L400,TRP,28,2	1	S.N.A
...3	T0610	AA68-03242E	MANUAL-SAFETY GUIDE;All Model,SAMSUNG,8L	1	S.N.A
...3	ACCESSORY	AA68-03575A	MANUAL-01,REGISTRATION CARD;XEU,ENG,UK,W	1	S.N.A
...3	ACCESSORY	AA68-03575B	MANUAL-010,REGISTRATION CARD;XEG,GERMAN,	1	S.N.A
...3	ACCESSORY	AA68-03575C	MANUAL-01,REGISTRATION CARD;XEF,FRENCH,W	1	S.N.A
...3	ACCESSORY	AA68-03575D	MANUAL-02,REGISTRATION CARD;XEC,SPANISH,	1	S.N.A
...3	ACCESSORY	AA68-03575E	MANUAL-02,REGISTRATION CARD;XET,ITALY,W/	1	S.N.A
...3	ACCESSORY	AA68-03575F	MANUAL-01,REGISTRATION CARD;XEN,DUTCH,W/	1	S.N.A
...3	ACCESSORY	AA68-03575G	MANUAL-01,REGISTRATION CARD;XEP,PORTUGAL	1	S.N.A
...3	ACCESSORY	BN68-00514A	MANUAL-03,WARRANTY CARD;PDP/LCD TV,EN,FR	1	S.N.A
...3	T0059	BN68-00907A	MANUAL-CARD;COMM,SAMSUNG,18 LANG,EUROPE,	1	S.N.A
...3	T0511	BN68-00939H	MANUAL USERS;COMM,Samsung,7Langs,W.Europ	1	S.N.A
0.1	M0003	BN92-01652A	ASSY BOX;LW20M21CPX/XEC,PL20KE,BOE PANEL	1	S.N.A
..2	T0129	BH75-10529C	UNIT-HANDLE/PACKING;S/M170MP,PE-LD,PE-HD	1	S.A
...3	M0103	BN72-60001A	LEVER-TOP;LSD210TL,PE-LD,WHITE,TFT_LCD	1	S.N.A
...3	M0102	BN72-60002C	LEVER-BOTTOM;S/M170MP,PE-HD,BLUE	1	S.N.A

9-1 Input Power Sound Schematic Diagram

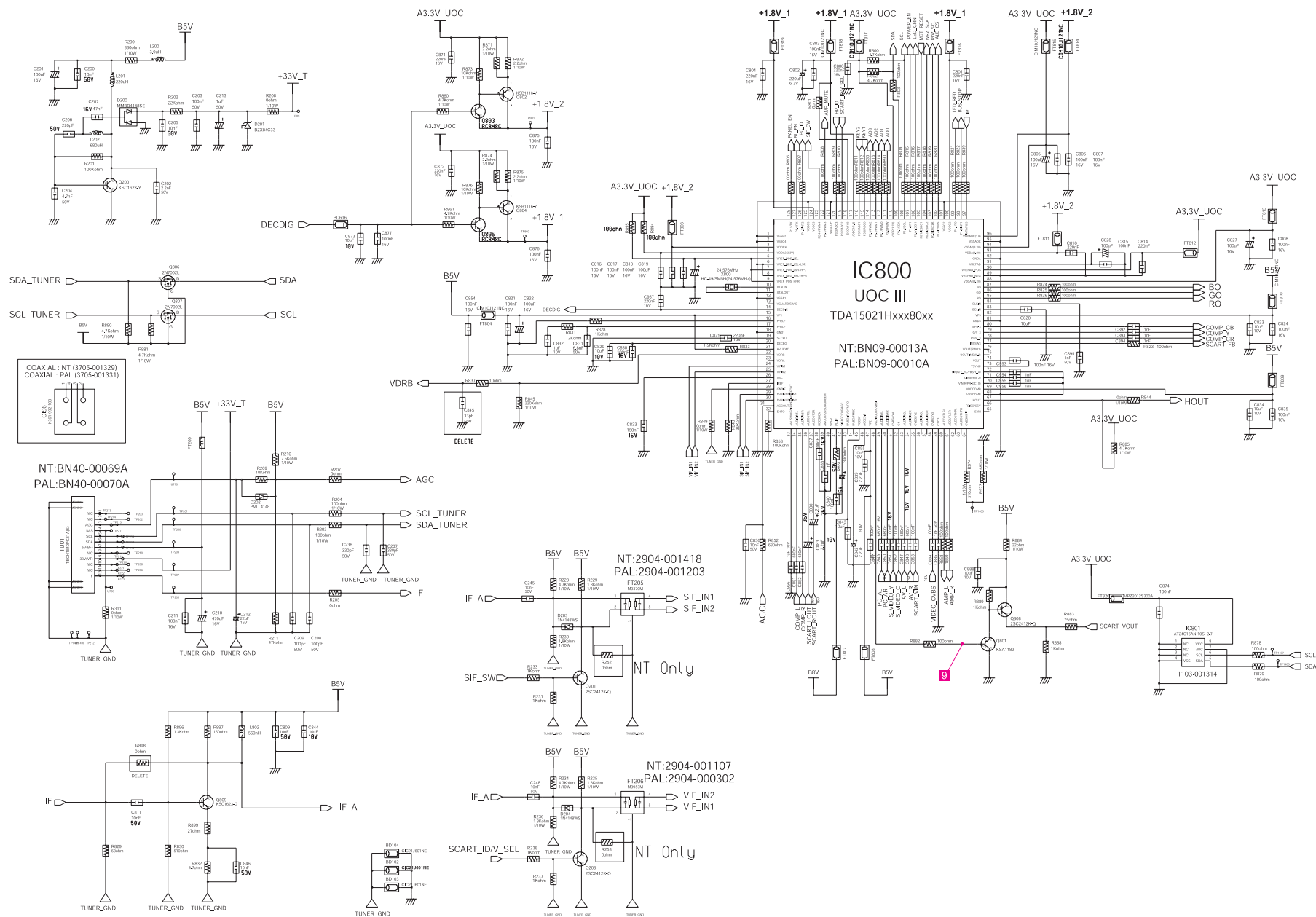


9 Schematic Diagrams

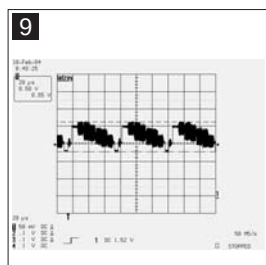


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9-2 UOC III Schematic Diagram

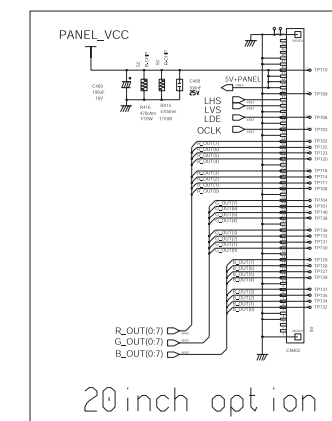
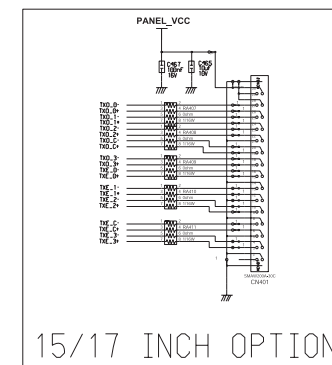
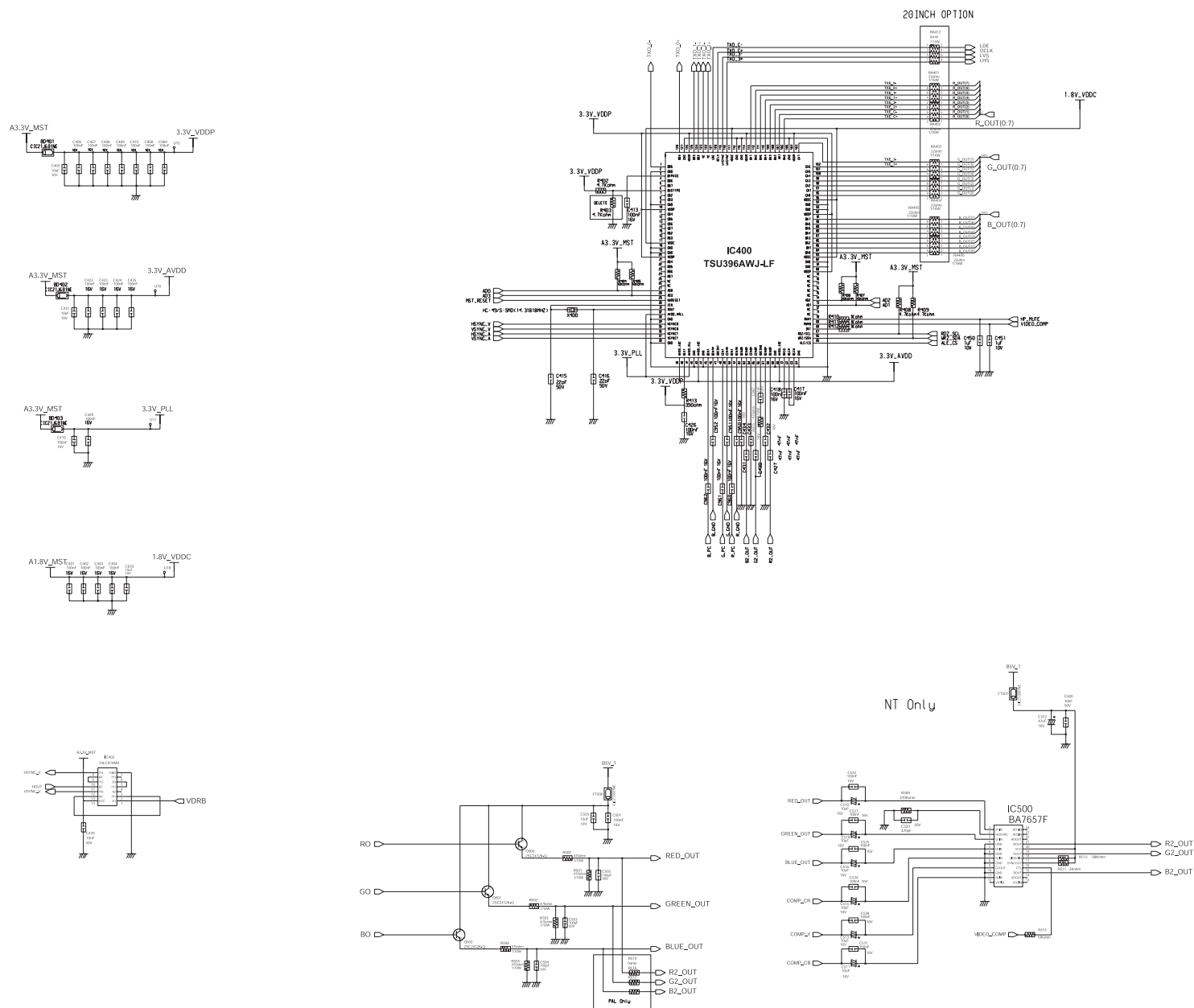


9 Schematic Diagrams



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9-3 Output Scaler, LVDS Schematic Diagram



9 Schematic Diagrams

- This Document can not be used without Samsung's authorization.

9-4 IP Board Schematic Diagram(LE15S51BP)

PART SPEC

1.0 SCOPE

THIS DOCUMENT DEFINES FOR A AC ADAPTER & INVERTER INTERNAL TYPE, 13VDC/2.0A, 5.0VDC/2.0A

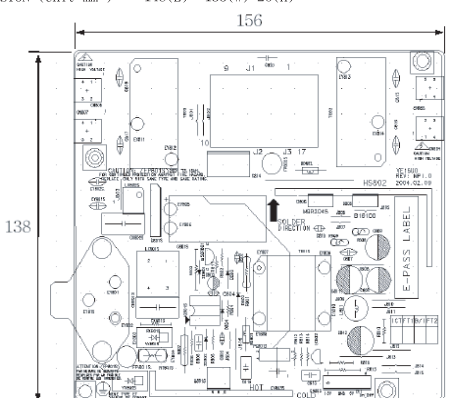
2.0 RELATED DOCUMENTS

3.0 REQUIREMENTS

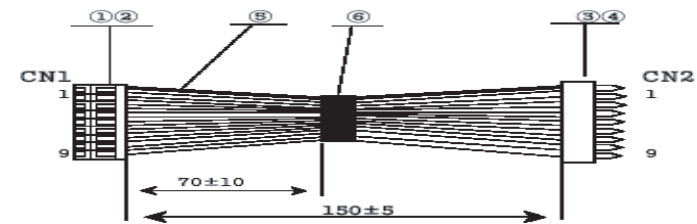
3.1 PHYSICAL CHARACTERISTICS

3.1.1 DIMENSION & APPEARANCE

1) DIMENSION (Unit:mm) 148(L) *135(W)*26(H)



3.1.2 WIRE SPEC



NO	NAME OF PARTS	SPECIFICATION	UNIT	Q'TY	REMARK
1	HOUSING	SMH200-09	EA	1	UL/CSA
2	TERMINAL	YST200	EA	9	UL/CSA
3	HOUSING	YBNH200-09	EA	1	YEON HO
4	TERMINAL	YBST200	EA	9	YEON HO
5	LEAD WIRE	UL1007 #24 GRAY,WHITE	EA	160*9	UL/CSA
6	AT TAPE	10mm, BLACK	EA	1	UL/CSA



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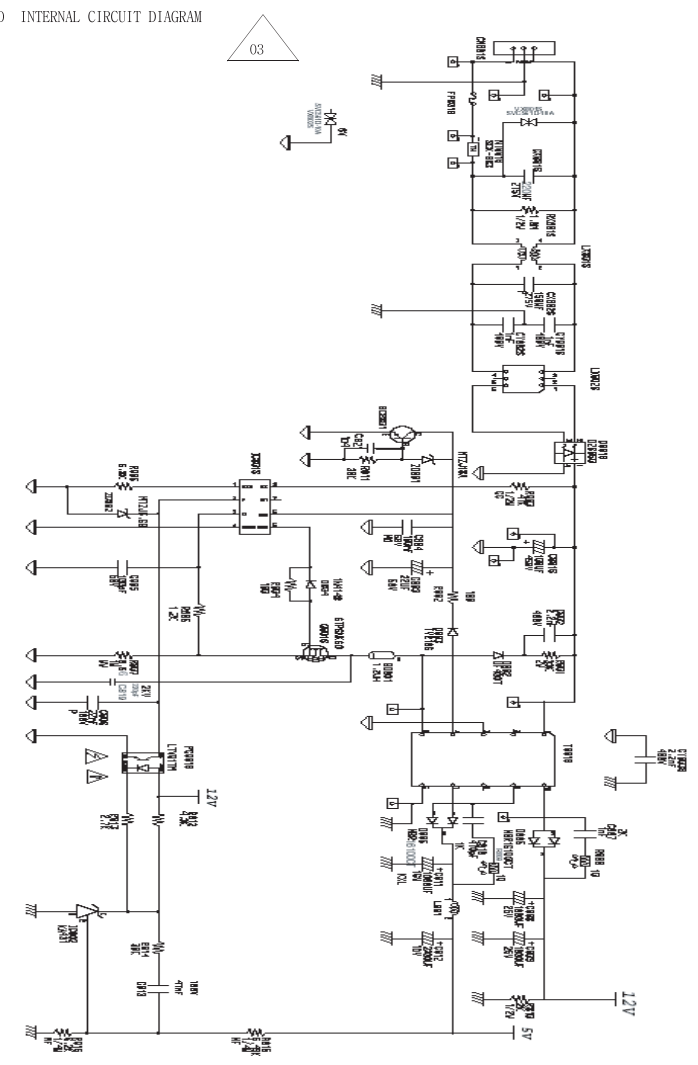
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PART SPEC

4.0 INTERNAL CIRCUIT DIAGRAM





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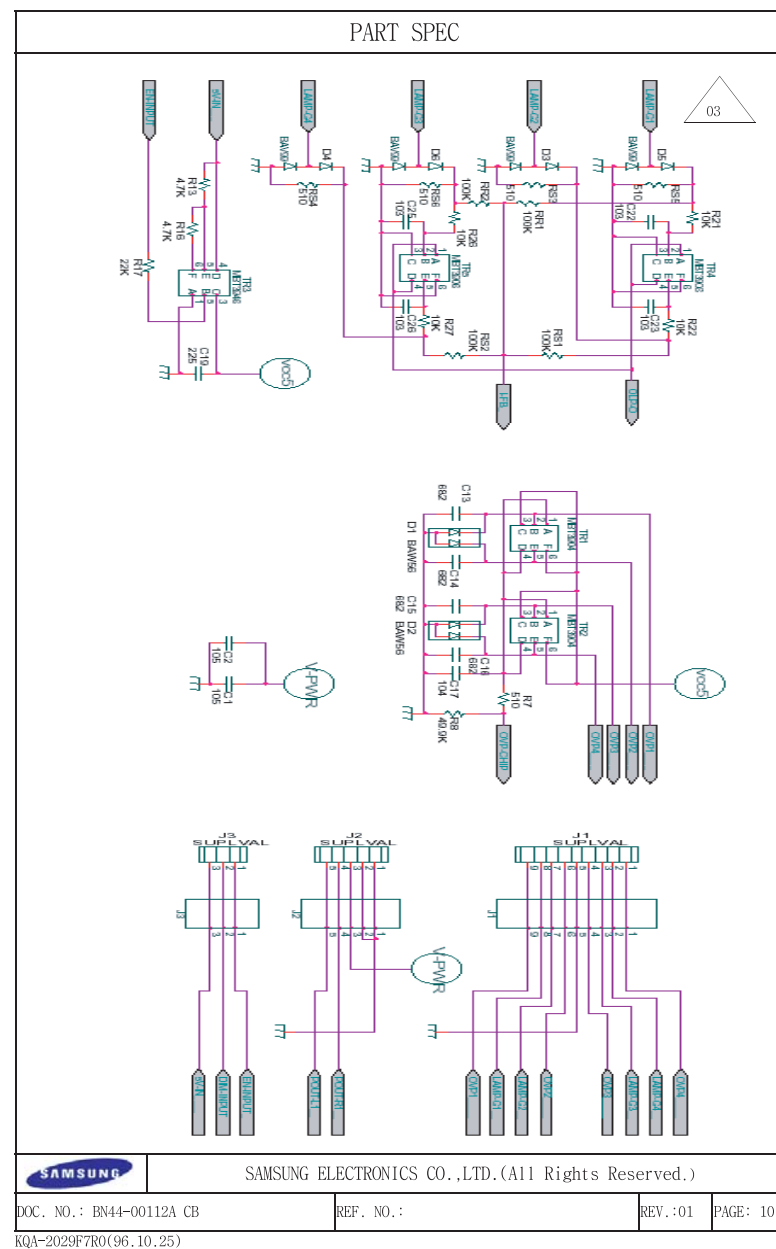
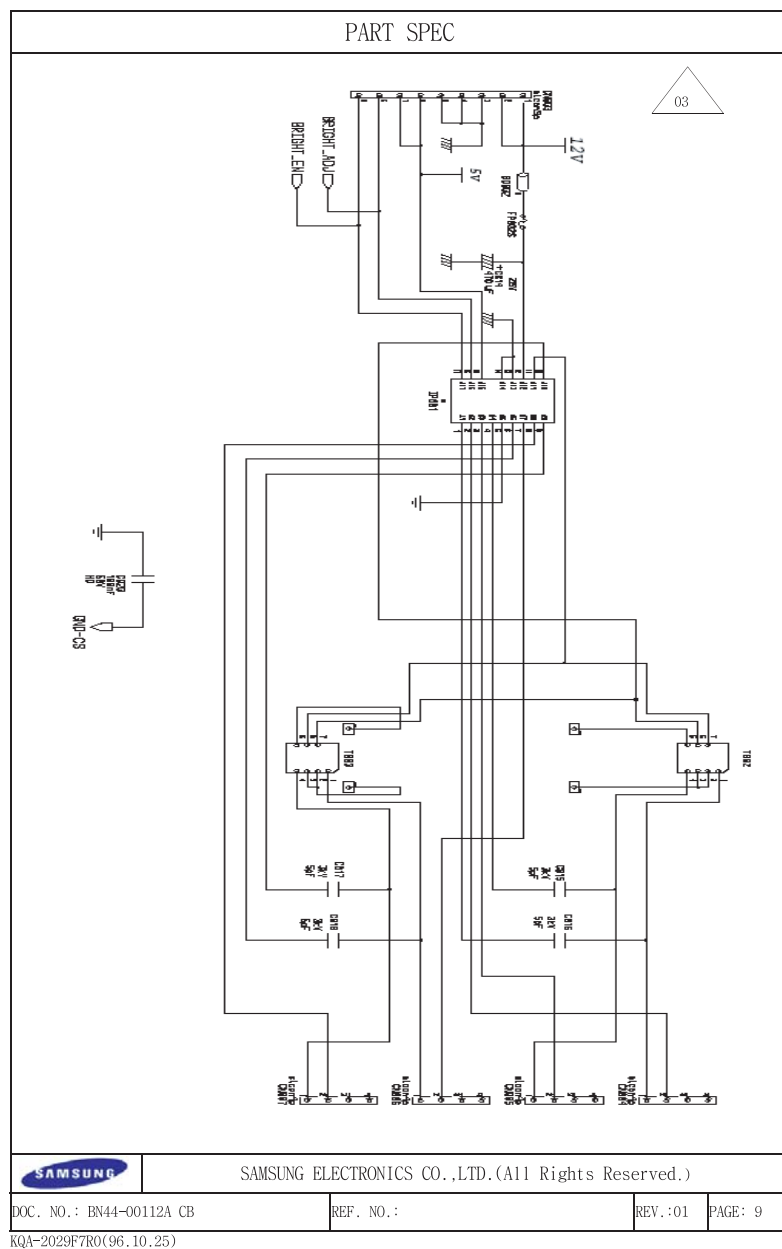
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9-5 IP Board Schematic Diagram(LE20S51BP)

PART SPEC

1.0 SCOPE

THIS DOCUMENT DEFINES FOR A AC ADAPTER & INVERTER INTERNAL TYPE, IP-51135T, 13VDC/3.1A, 5.1VDC/2.0A(*VENICE 20"*)

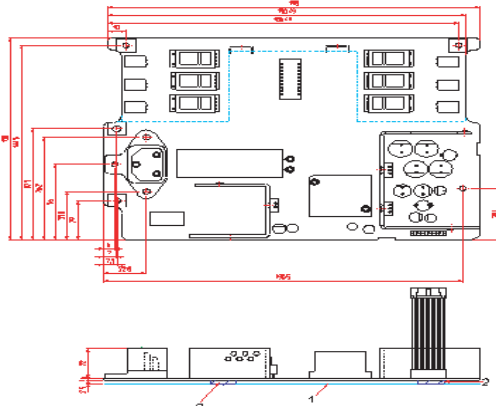
2.0 RELATED DOCUMENTS

3.0 REQUIREMENTS

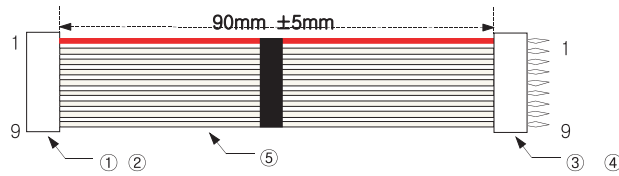
3.1 PHYSICAL CHARACTERISTICS

3.1.1 DIMENSION & APPEARANCE

1) DIMENSION (Unit:mm) 148(L) *135(W)*26(H)



3.1.2 WIRE SPEC



NO	NAME OF PARTS	SPECIFICATION	UNIT	Q`TY	REMARK
1	HOUSING	SMH200-09	EA	1	YEONHO
2	TERMINAL	YST200	EA	9	YEONHO
3	HOUSING	YBNH200-09/B2011H02-09	EA	1	YEONHO/JWT
4	TERMINAL	YBST200/B2011TOB-B2E	EA	9	YEONHO/JWT
5	LEAD WIRE	UL1007 #24	EA	1	UL/CSA



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DOC. NO.: BN44-00115B CB

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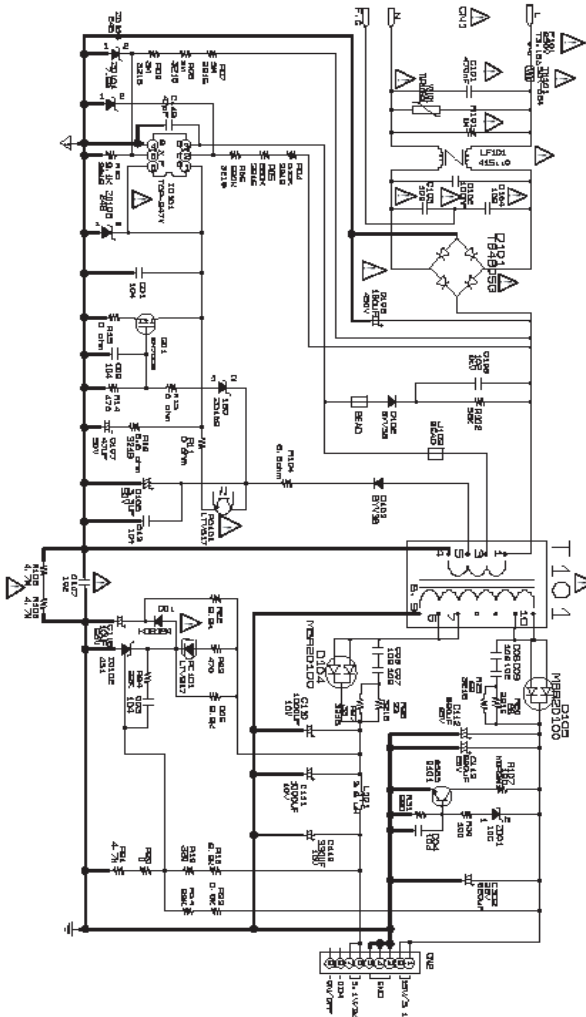
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PART SPEC

4.0 INTERNAL CIRCUIT DIAGRAM





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DOC. NO.: BN44-00115B CB

REF. NO.:

REV.: 00

PAGE: 8

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